THE OIL WEEKLY

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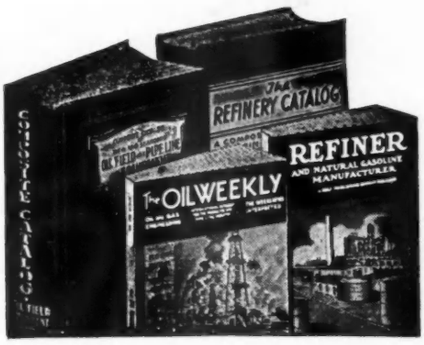

SPECIALIZED OIL JOURNALS

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The Oil Man's Calendar

JUNE 16–20	American Society of Mechanical Engineers, Petroleum Division, Kansas City, Mo.
19–20	Pennsylvania Grade Crude Oil Association, Bradford.
19–21	Twentieth Anniversary Celebration, Arkansas Petroleum Industry, El Dorado.
20–21	Kentucky Oil and Gas Association, Mid-Year Meeting, Lexington.
SEPT. 8–12	American Chemical Society, Atlantic City.
17–19	National Petroleum Association, Atlantic City.
OCT. 20–22	Independent Petroleum Association of America, Tulsa.
NOV. 2– 7	American Petroleum Institute, Annual Meeting, San Francisco.

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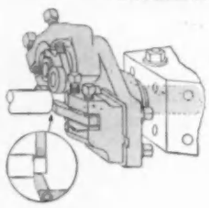
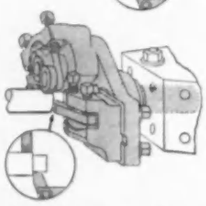
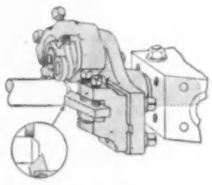


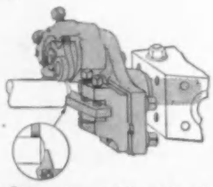
Turn Short Diameters—Using a square cutter, this combination tool becomes a Single Cutter Turner. Note the rolls follow the cutter to burnish the work to a fine quality finish.



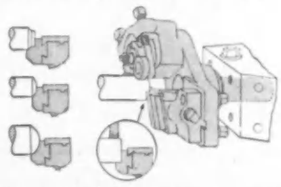
Turn Short Diameters Concentric—rolls ahead of the cutter "pilot" on the finished larger diameter for concentricity. The rocker makes it easy to adjust the cutter to height.



Chamfer or End Face with this combination tool. Note how rolls ahead of the cutter absorb the cutter pressure. The sketch shows chamfering—change the cutter and you can end face.



For End Forming with a Flat Cutter use this Combination End Facer and Turner. With this tool and flat cutters ground to the right shape, your end forming problems are solved.



As an End Former—dovetail-type form cutters replace the cutter block to turn standard shapes, forms and radii in the end of bars.

COMBINATION END FACER AND TURNER STEPS UP PRODUCTION ON SHORT SHAFTS, STUDS, BOLTS OR SHORT DIAMETERS.

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The Changing Panorama

Oil Equipment Priorities

Users Must Cooperate With Manufacturers To Get Materials

Those who are familiar with the difficulties of developing priorities on different kinds of equipment say that manufacturers of oil-country equipment will find it extremely difficult to secure priorities on steel or other metals unless this effort has the complete cooperation of the oil companies who will use the finished material.

At this time it appears that the oil companies do not realize the danger of a shortage on some materials which is likely to come about within the next several weeks.

In its desire to cooperate under the present emergency the oil industry is unwilling to take part in any unnecessary request for priorities, and this is as it should be. However, if oil companies will check with manufacturers of certain types of equipment that will be absolutely essential they will discover that there is a strong probability of a shortage in certain types of equipment and that this shortage may not be far off.

If the oil industry is to operate on the basis of a less number of wells drilled for the next year than has been the case in the past, it is necessary that such wells as may need to go on the pump be equipped for the pump promptly. To trust to the possibility of equipping such wells with used equipment without thorough study is folly. Of course, there is some used equipment which can be put on the new wells going on the pump but the amount of this equipment, according to a survey made by THE OIL WEEKLY last January, is less than is generally thought.

On the other hand, the two materials which constitute a bottleneck in the manufacture of pumping equipment represent such a small portion of the total production of such equipment (we refer particularly to bearings and structural steel) that adequate priorities would not even make a dent in the total production of these materials. It is not inconceivable that the oil industry will be faced with an increasing shortage in man power in the fields and makeshift equipment will be no contribution toward the oil industry's part in winning the war.

Statements Not Required . . .

There has been widespread confusion over certain provisions of General Metals Order No. 1, issued by the Priorities Division of OPM, requiring sworn statements from "customers" as to stocks and consumption of materials involved when placing new orders with suppliers. It was thought at first that the order, effective June 10, was to apply to purchasers of manufactured products using any material covered by the General Metals Order and, thus was directly applicable to oil-industry purchases of tubular goods as well as all other steel products. (See THE OIL WEEKLY, Page 8, May 26.)

Investigation shows that oil equipment purchasers are not required to file a statement with their orders and neither are oilfield supply concerns required to report on the sale of finished products to their customers.

The order, designed to prevent excessive accumulation of stocks of steel and other metal materials, applies only to the purchase of semi-processed or pre-manufacturing materials by manufacturers (defined as customers) from distributors and mills.

Customers Overboard! . . .

Unless the Eastern transportation problem is solved immediately, the industry stands to lose some of its valued hard-won customers. Especially are heating-oil consumers likely to turn to coal as a fuel supply. It will be just as difficult, if not more so, to get them back again as it was to obtain them originally. They will not quickly forget that they could not purchase oil when they wanted it, but they will not remember that it was for the benefit of the nation's defense program that the Gulf-to-Atlantic tanker service was disrupted. The result but not the cause will be remembered, and so oil stands to suffer a penalty for a long time.

Ickes' First Meeting

"Office Not to Be Dominated by Any Group"

A definitely favorable impression was developed among oil men of his attitude in his new job as coordinator following the first meetings held between Coordinator Ickes and oil men in Washington.

It is too bad that a prompt report could not have been made on those meetings to the industry. The general effect of Secretary Ickes' approach to the men in the oil industry was that while he was somewhat familiar with the situation he was desirous of becoming more thoroughly acquainted with it. He stated that there would be no domination of the coordinator's office by any association, any oil company or any group of companies. He assured them of his cooperation with the oil industry bespoke the cooperation of the industry in return, stating the obvious fact that it is necessary that all work together to win the war. Some of those with whom we have talked who were present at the meeting stated that he made a definitely good impression and that his attitude was that he desired to be fair to all portions of the industry.

Letters . . .

From all sections of the United States THE OIL WEEKLY has received letters commending it for

the editorial dealing with federal control appearing as a supplement to the June 2 issue.

So many letters were received that it will be impossible to publish them without giving over a material portion of this week's issue to that assignment.

All of the letters commended the stand taken by THE OIL WEEKLY except one in which the writer said that in his league they recognized that the umpire is in there with a lot of authority back of him. Our reply to this letter was that in all instances in which we have played ball the umpire operated on the basis of pre-determined rules and pointed out the danger of accepting everything handed us from Washington as being a mandate inspired by the Almighty.

We take this opportunity of expressing our sincere thanks to those who commented on the editorial and to assure you that we ourselves shall be no obstructionists but that we shall not hesitate to criticize anybody from President Roosevelt on down if we think the criticism is merited or will accomplish something worth while.

Deputy Coordinator . . .

The appointment of Ralph K. Davies as deputy coordinator will meet with the general approval of the oil industry. A number of men were mentioned for the position of deputy coordinator, among them Dr. Robert E. Wilson, petroleum advisor to OPM, Congressman Cole of the Cole Committee, Paul Hadlick, Charles Roeser and James Moffett.

German Patents And U. S. Defense

Some of the remarkable German scientific discoveries are being used by the United States in its preparation for war and aid-to-Britain program. Only far-sighted American industrial enterprise, which invested private capital in the processes and thereby obtained the right to use them outside of Germany and thus learned the working details, has made this possible.

Toluol, essential at this time for defense purposes in the manufacture of explosive, has been made available from petroleum through American development of an oil-refining process originating in Germany.

Possession of German patent rights covering hydrogenation and related fields for the production of synthetic oils from coal, oil and gas is another example. High quality aviation fuels are produced in the United States from oil by hydrogenation itself and by the related processes of hydroforming and catalytic refining.

Production of some synthetic rubber from oil and gas in the United States is due to the development of another process originally secured by American capital from German research work.

Allis-Chalmers Strike . . .

Every American should read the article by Stanley High on the Allis-Chalmers' strike appearing in the current issue of Reader's Digest. It is a revelation.

What Holds Up the Padlock?

Defense plants, and to a lesser extent refineries and pipe-line stations are being made relatively difficult of entry, and justly so. But the business of transporting oil across country still apparently does not recognize, as does Signor Mussolini, that the United States is all but technically in a state of war with the Axis at this moment.

Shipping interests, munitions plants, even other raw material sources have been the scenes of mysterious explosions, fires and disasters, each given its news-whitewash of "no evidence of sabotage," but with the tightening of restrictions and the doubling of guards afterwards.

Is oil transportation now and to be immune from these fortuitous accidents? Or must some major pipe line be severed at an unguarded river crossing before the vulnerable lines are given more than the periodic line-walking inspection for protection? Of course, were the United States actually in war, pipe lines would be guarded as were railroad facilities in the last war. Would not it be good training for some of the present "one-year" men to undertake patrolling of pipe lines before a "disaster" emphasized the need—and at the same time further insure transfer of petroleum products?

History is crammed with instances of locking the stable door behind the departed horse. The oil transportation industry still has an opportunity to set a precedent by locking the sabotage door in advance. The try is worth while, if only to demonstrate to the Axis "torpedoes" that for once they had been outguessed and forestalled.

More Gasoline Moving East

Increased Motor Fuel Shipments Explains Rise in Stocks

Rising gasoline stocks along the East Coast at a time when there is a shortage of tankers for moving products from Gulf Coast ports has caused some to wonder how come.

The explanation is simple. A larger than normal portion of the available tanker space is being used to carry gasoline at this time. Oil companies are concentrating on the movement of gasoline to meet the immediate heavy summer consumption of this product. Smaller than normal quantities of other products are moving to the East, as shown by the less than usual increase for this season in East Coast gas-oil and distillate-fuel stocks as well as residual fuel storage. The plan is to take care of the immediate heavy consumer demand for gasoline, and hope some solution to the East Coast transportation problem will be found in time to move sufficient quantities of heating oils for their peak consuming periods during winter months.

A total of approximately 615,000 barrels of gasoline is needed along the Atlantic Coast seaboard states to meet daily demand, and present stocks of this product are equal to a 35-day supply.

Defense Stamps Purchased . . .

Tide Water Associated Oil Company has purchased 10,019 United States Defense Postal Savings Stamps of $1 each for all its employes. This, the largest wholesale purchase of Postal Savings Stamps to date, was made to encourage purchase of additional stamps. The company itself has bought the full legal limit of Defense Bonds allowed any one corporation in any one year.

Expansion of Current Lines Most Logical East Coast Relief

Enlargement of existing systems to Middle West plus new lines on to coast would take less steel, time and money than construction of big carriers all the way from Texas

By ELTON STERRETT, Staff Writer

IF THERE is one factor in the current oil-transportation difficulty on which a majority of authorities seem to agree, it is that the most serious shortage of tanker facilities for moving petroleum and its products from the Gulf Coast to the Atlantic Seaboard is due to occur during the last quarter of this year and the first quarter of 1942—or during a period four to seven months hence. Therefore, any plan for ameliorating conditions must include speedy inauguration of operations as its first requisite. Some of the schemes, such as the construction of huge carriers all the way from Texas to the East Coast, cannot meet this test. It appears that expansion of existing systems coupled with the construction of some necessary connecting carriers in the eastern area offer the speediest and most economical means of obtaining relief, and the industry seems to be coming around to this viewpoint as indicated by looping of some Mid-Continent to Middle West lines.

From data collected by the API Committee on Transportation, and presented to the OPM and Coordinator Ickes on June 3, it appears that if foreign-flag tonnage now importing oil into the United States should be removed, as considered probable because some of it is under British control, that the shortage of Gulf Coast to Atlantic Seaboard tankers will total 300,000 deadweight tons in the third quarter of this year, rise to 636,000 in the last quarter, be 547,000 in the first quarter of 1942, and then drop to 105,000 deadweight tons. Thus, there may be a daily shortage of 123,000 barrels in carrying capacity from July through September this year, then a jump to a shortage of 253,000 barrels per day during the remainder of the year, and be short 216,000 barrels daily during the first three months of 1942.

Big Lines Slow Building

Granting that this summarization of the situation represents the nearest approximation of what may be expected, it may be assumed that the facilities of proposed new large pipe-line systems and additional tankers cannot possibly be ready within the period of their greatest need.

The much talked of 24-inch crude carrier from Texas to the Atlantic area, if approved and rushed to completion with every facility, is expected to require 9 to 15 months. Other proposals for big lines all the way to the East naturally would require the same amount of time, and because of greater distance in the case of some, even longer.

The Plantation Pipe Line Company finished product system interposes the same delay in relief in that it is not expected to be completed before July, 1942. When completed, even if carried on to Norfolk or possibly even to Baltimore, can move only a relatively small part of the tonnage required by the upper Atlantic Seaboard, greatest consumer of petroleum products of any geographical division of the country, and one in which the need for military and industrial uses is increased by the present defense program.

More Immediate New Possibilities

Construction of a line from Portland, Maine, to Montreal, Canada, and finishing of the line from Port St. Joe, Florida, to Chattanooga, Tennessee and points in Georgia, offer more immediate possibilities because of their shorter distances and progress already made.

Contract has been awarded by Standard Oil Company of New Jersey for the Portland-Montreal line, and it is expected to be finished by January 1, 1942. This will shorten shipment routes to Montreal, and movement of 35,000 barrels daily through the system thereby would release 3.4 tankers.

The Southeastern Pipe Line Company gasoline line from Florida into Tennessee and Georgia waits only completion of railroad crossings. If immediate clearance for crossing opposing railroads is procured, it could be finished in October, this year. It will carry 18,000 barrels of products daily, equivalent to 2.2 tankers.

Expand Existing Lines

Because of the ability to place expansion of existing lines into operation more speedily, the need for less pipe and having rights-of-way already available, such plans should receive careful study.

Approximately 33,000 barrels of Mid-Continent crude are now moving daily via pipe line to the east coast, and an additional 11,000 bar-

rels will be carried by July 1. This will just about fill all present facilities for shipping crude to the Atlantic Coast. The chief bottleneck exists from Lima, Ohio, eastward. By expansion of systems from the Mid-Continent to the Middle West, some of which is under way, by use of additional Middle West facilities and by elimination of bottlenecks east of Lima, this movement could be increased materially.

A 40,000 Barrel Possibility

In its report to OPM, the API Committee stated that Indiana Pipe Line Company has a line from the Chicago area to Lima, Ohio, with a capacity of 40,000 barrels per day not in use. Existing pipeline capacity from the Mid-Continent is sufficient to provide for movement of this additional oil to Chicago with but minor changes in manifolding and transfer points. This quantity of crude could be made available to the Atlantic Seaboard refineries if a new line be built from the Lima terminal eastward to seaboard. Construction of this line should present no serious difficulty, being comparatively short and assuming that it be regarded as a defense project and be given steel priority rights. Route of the line could follow that of the present Tuscarora line and that of Columbia Gas & Electric Company. The last named systems might well be used also, although it would be necessary to reverse the Tuscarora line.

This relief in the amount of 40,000 barrels per day could be available, if sufficient construction gangs be utilized, in not to exceed 90 days from the time first steel is delivered.

Such a line, from Lima to the Seaboard, is theoretically capable of being looped and its capacity increased by as much as 25 percent without either additional pipe or pumping equipment requiring top-heavy investments which could not be amortized in normal, peace-time operation of the line as a commercial and economic means of transporting crude. Further stepping up of lines west of the Lima tie-in would, of course, be required before this additional capacity would be useful east of that point.

Lines from Texas and the Mid-Continent to points in Illinois, Indiana and Ohio are already being expanded to provide additional capacity. Gulf Refining Company, through its Tulsa Pipe Line Division, now has underway a program calling for the expenditure of $2,000,000 to be used in looping its present system from Glenpool, Oklahoma, to Dublin, Indiana, where its present capacity is being delivered to Toledo and Detroit over one branch and to Cincinnati over another. The laying of 203 miles of loops to relieve pressure "bottlenecks" on the existing line is calculated to increase the total throughput of the system by 10,000 barrels per day.

This line, having been looped previously by the laying of nearly 300 miles of pipe, offers interesting possibilities of having its initial capacity doubled by the laying of sufficient line—some 232 miles of additional pipe—to make initial loops serve as first sections of parallel lines, additional pumping capacity for the increased throughput being installed alongside present equipment. By further looping its then parallel system, over such sections as may show pressure "bottlenecks," the line could be again stepped up to give a total throughput of around 85,000 barrels per day, presenting a second increment of around 40,000 barrels of crude per day delivered at an Ohio terminal, and eligible for delivery to Atlantic Seaboard through duplication of the line to take the surplus capacity of Indiana Pipe Line Company from Lima eastward.

Thus, by expanding one system from the Mid-Continent eastward, utilization of existing capacity in another and the construction of two 700-mile lines from Ohio points to the Coast, one third the estimated total daily shortage of petroleum products on the East Coast can be eliminated by but little more steel than would be required to build one 12-inch line from the East Texas area to Atlantic terminals, making use of existing stations and present operating personnel over more than half of the distance.

Other present crude carriers operating between Texas and Mid-Continent points and the Middle West have likewise looped their lines, but each could boost present daily pumpings by amounts of from 10,000 to 25,000 barrels through the laying of additional loops, linking present loops to form paralleling lines, and the installation of additional pumping equipment. This additional capacity, delivered to Mid-West points, in turn would demand additional lines from their terminals to Seaboard. However, three of these 700- or 750-mile lines would require much less pipe than two gigantic "big inch" 1500-mile carriers contemplated all the way from Texas to the vicinity of New York. Moreover, their smaller diameter would require even less steel than the difference in mileage.

These various expansion projects, if all approved, could deliver more than half of the estimated shortage of around 250,000 barrels per day, without it being necessary to construct a single line the entire distance contemplated in the 24-inch project. And, most important to present tightness in crude deliveries to the East Coast, the benefits of each of these additions to existing facilities become available and profitable as soon as completed, without being held up for periods of possibly several months before deliveries are possible.

Fulfill Half of Needs

Having provided one half the required capacity to the Atlantic Seaboard through additions to present lines and a minimum of new construction, all with the desirable factor of prompt deliveries and continued operation of eastern refineries on stocks and such crude as can be handled through the increased facilities, it is then possible to return to the alternate suggested to the 24-inch line, in which four 12-inch lines were advocated in place of the single large line.

With half the capacity already covered, only two 12-inch lines need be laid over the projected route, with all efforts concentrated on one and then the other, so as to hasten the completion and provide at least partial relief in the crude market.

These two 12-inch lines, instead of being excess capacity over forecast normal, peacetime requirements, could be utilized as feeders to the eastern users, or might become crude sources for local refineries, set up at strategic delivery points along the line, reducing freight hauls to a minimum and eliminating much of the present duplication of hauls which characterizes the travel from well through refinery to consumer.

Construction of these two 12-inch lines, if scheduled to begin at completion of the necessary looping to get the extension program on existing lines into service, could thus get away to a flying start through the additional time permitted for such permanent in-

stallations as river crossings, station foundations and manifolds, all of which tend to delay completion beyond the time required for the actual stringing of the pipe.

Still another project emanates from the Washington area—that of building a line, size and capacity as yet undisclosed, from Wood River to the Atlantic Seaboard. This line, while considerably shorter than the projected 1500-mile giant, would require considerable increase in the capacity from Texas and Mid-Continent points before it could handle oil enough to meet projected Eastern demands. And, such a line, by reaching as far west as the Mississippi river, duplicates in effect pipe line capacity already available in the instances cited above for more than a third of the entire distance it would need to traverse.

Already Carrying Crude

Tanker shortage, already being felt on the Gulf Coast, has prompted rerouting of much crude, reversal of flow in some lines, and reconditioning of lines now idle due to earlier trend of moving crude toward the Gulf Coast. East Texas crude is now being routed north by Gulf Refining Company from its Big Sandy station into Oklahoma for the first time since early in the development of the field. The same system has a set-up for moving sweet crude from North Texas and West Central Texas via Fort Worth and Saltillo into Oklahoma, with possible segregration of sour crudes to Texas refineries and consequent clearance of longer lines for handling less corrosive fluids.

Magnolia Pipe Line Company has diverted the bulk of its North Texas high-gravity crude runs north into Oklahoma, and has available some 20,000 barrels capacity in its Oklahoma-Beaumont system to pump north from Ringgold station. This company is credited with moving about 10,000 barrels of North Texas crude daily into Oklahoma for consolidation with 40,000 barrels daily for delivery to Sinclair Pipe Line Company's Panova station. This crude is destined for Socony-Vacuum Oil Company's plants at East St. Louis, East Chicago, Detroit and Buffalo.

Projected revamping of the Magnolia system would enable it to divert practically all its West Central and North Texas crude to Oklahoma, after which the Fort Worth refinery would operate on East Texas crude formerly finding its way to the Gulf Coast and tanker shipment to Atlantic Seaboard points.

Stanolind Pipe Line Company has completed the necessary pipe-line hook-ups to absorb 8000 barrels of Gulf Coast crude daily and will make initial north bound shipments from Houston territory July 1. This company has 50,000 barrels capacity northward from Sinco station via Mexia, of which 15,000 is taken on a two-year contract. Stanolind's looped system from Mexia northward to Healdton, Oklahoma, has a capacity of 28,000 barrels, having two lines from Graford station north. A third line is being laid from Nocona station into Healdton, permitting segregation of various crudes on northward pumping.

Pure Oil Company plans a 36-mile 6-inch extention to its present line serving the Cumberland pool, to tap the Fitts pool, Pontotoc County, Oklahoma. This company plans to move 6500 additional barrels daily to the Chicago area, previously shipped to the Smith's Bluff refinery, on the Neches river below Beaumont, Texas.

Sinclair Refining Company is revamping its North Texas and West Central Texas set-up to divert all its sweet crudes north into Oklahoma, having some months back cut off 20,000 barrels daily from upper Mid-Continent sources to its refinery and tanker terminal at Houston.

Early in May Humble Oil & Refining Company began routing 20,000 barrels East Texas and 4000 barrels North Louisiana and Arkansas crude via reconditioned line of Oklahoma Pipe Line Company from DeQueen, Arkansas, to Glen pool, Oklahoma. By addition of pump stations and additional equipment this line capacity can be increased from its present throughput to 30,000 barrels per day.

Appreciable additional quantities of crude from East Texas, North Louisiana, Arkansas, and North Texas could be made available to the expanded facilities in the Middle West and Eastern United States by construction of short new systems and stepping up of capacities of present carriers.

Tanker Schemes Lack Merit

None of the schemes put forth with regard to speeding up current tanker facilities possesses the merit of providing a permanent carrier, which may be expected to function economically even in periods when the demand is not bolstered by war needs.

Speeding tankers beyond their economic cruising speed exacts toll in motive power as well as hull and superstructure, inevitably moving ever closer the period of lost time for general overhaul, with increased danger of break-down at sea with possible loss of ship and cargo.

Lowering the freeboard by crowding another three percent of cargo aboard a tanker is at best a one-sided gamble. Crews who have faced a Hatteras storm or the tail end of a hurricane with present legal loads aboard will not welcome the prospect with their vessel still lower in the water, her maneuverability reduced and speed slackened by the greater displacement of the augmented cargoes. Here, again, the slight gain in capacity fails to pay dividends on the greater risk of loss of the ship and cargo.

Tankers War Targets

Again, even coastwise tankers, not to consider those engaged in "ferrying" South American crude to Halifax, present an alluring target which sooner or later may prove too interesting to a lurking submarine, even well within the limits of present offshore patrols.

A pipe line, or series of pipe lines, may be completely guarded with a smaller personnel than would be required to man patrol vessels sufficient to keep tanker lanes open. And a line-break, even in unfavorable terrain, will result in the loss of but a few hours' pumping and perhaps as many hundred barrels of oil, while a mined or torpedoed tanker eliminates just that much rated deadweight tonnage until the already overcrowded shipyards can fabricate a replacement.

The various loops, doublings, new extensions and the two parallel 12-inch lines necessary to move additional barrelage East could be built and be delivering oil long before the deadweight tonnage they would supplant could be laid out and launched, even were slips available for ship construction.

While tanker movement generally represents a much cheaper operating proposition, the entire pipe line network predicated could be installed and put to pumping at a cost estimated at from 50 to 60 percent of the initial cost of the necessary number of tankers and the current shortage of tankers probably will boost cargo rates to levels comparable with pipe line tariffs.

Washington Oil Round Up

Coordination program used to promote divorcement bills . . . Hearings will retard pipe line bill . . . Pressure put on Texas and Illinois conservation acts . . . OPACS delays California price action . . . Davies to assist Ickes

THE confused conglomeration of oil activities precipitated by President Roosevelt's establishment of an office of petroleum coordination gradually assumed a more recognizable aspect which showed, however, that proponents of the oil-industry reform are climbing on the band wagon of Coordinator Harold L. Ickes, with or without his consent and with little regard to Administration policy.

The outstanding evidence of a desire to use the coordination program as a springboard for reorganization of the industry was the hearing suddenly called by the Senate Judiciary Committee on the three bills of Senator Guy M. Gillette (Dem., Iowa) for disintegration, in the face of the appeal made last fall by the National Defense Advisory Commission that divorce be dropped from the Government's anti-trust bill of complaint in the District of Columbia Federal Court and the acquiesance of Attorney General Robert H. Jackson to that request.

Less obvious and, to the industry, less objectionable was the decision of the Senate Public Lands Committee to take up the O'Mahoney measure calling for an investigation of petroleum and other resources on the public lands of which Wyoming has a large acreage on which development has not been particularly rapid.

With the announcement of the appointment of Ralph K. Davies, vice president of Standard of California, as deputy coordinator, Coordinator Ickes began the organization of his new office, presenting to a surprised industry a countenance far more benign than he displayed seven years ago as administrator of the petroleum code.

The coordinator gave every indication of seeking to help the industry solve the problems of the emergency with as little interference to their normal activities as possible. He paid high tribute to the anxiety of the oil men to cooperate, declared there was nothing that could be asked that they would not attempt to do, and showed no disposition to attempt "regulation."

Other developments of the week included:

The Cole pipe line bill struck its first barrier in the Senate and was turned over to a subcommittee of the Interstate Commerce Committee for consideration;

Establishment of industry committees to cooperate with the coordinator, acting in an advisory capacity, was assured;

The Illinois conservation controversy showed signs of possible settlement as a legislative delegation assured Coordinator Ickes of their cooperation in seeking a conservation law;

The OPACS delayed action on the California price situation until next month but "moved in" on Standard of Ohio to halt a proposed price increase.

HAVING brought operations and problems of the petroleum industry under a single coordinating guidance, the government necessarily has had to consume some time in setting up the machinery and organization through which the industry henceforth will be controlled. But by the end of last week, only half a month after initiation of movement, centralized control of the industry had assumed definite form and had begun to function to a limited extent. And it was evident that significant developments could be expected to begin unfolding subsequently in rapid succession.

Secure in the position of boss of the industry, which he long coveted and then gained overnight without a struggle, Harold L. Ickes last week was well occupied with his responsibilities as Petroleum Coordinator for National Defense. Meanwhile, Ralph K. Davies, vice president of Standard Oil Company of California, took possession of his desk as deputy coordinator and prepared to develop an organization to coordinate the handling of petroleum. And there was much talk of the probability that an industry committee would be appointed to work with the coordinator and his deputy, gossip having circulated as to who might be appointed, although there had been no official announcement that such a committee would be set up. This speculation was predicated on the assumption that an advisory committee would be created, just as the Planning and Coordination Committee was established under the NRA petroleum code.

In this connection, Russell B. Brown, general counsel of Independent Petroleum Association, stated:

"The industry is in much better condition now to consider its problems from a national standpoint than it was when the petroleum code went into effect. At that time few if any members of the industry were in a position to consider our problems from a broad general viewpoint. Because of a long and intimate service on the many committees set up under that code, today there are large numbers of men who are in a position to look beyond their own immediate problems and to view the industry as a whole. This should make the task of coordinating the industry's effort with the efforts of federal and state agencies much simpler than was the similar task in 1933."

Tanker Relief Possible

Some relief from the tanker scarcity appeared a possibility as the House committee reported favorably on a bill for lifting the load-line restrictions on coastwise shipping for the period of the emergency and for giving the Secretary of Commerce the authority to determine the safety line. The report asserted half of the United

States tanker fleet would be affected, which would enable the movement of 40,000 barrels per day more petroleum to the Atlantic seaboard than now being delivered.

Meanwhile, oil men were told that the Maritime Commission would approve the construction of 36 new vessels and would aid the companies in obtaining necessary materials, but that they would have to find shipyards and labor themselves. The industry was preparing to take action on this suggestion.

Pipe Line Building Bill Hits Snag

Legislation as usual, like business as usual, fails to fit into the enunciated national policy of making the defense program a supreme effort. Consequently, Ickes last week unsuccessfully sought a circumvention of normal legislative procedure for putting onto the statute books the house-passed bill by Cole that would facilitate emergency building of gasoline and oil pipe lines.

Following reference of the bill to his committee, against wishes of Ickes, Senator Burton K. Wheeler of Montana, head of the Interstate Commerce Committee of the Senate, asserted that he had no intention of delaying the measure but stated that a subcommittee in fairness to all concerned would hold hearings on it. The result may be a delay of weeks or months.

Railroads Oppose

It is understood that Ickes did not want the bill to go its logical route to the Wheeler committee, because of that senator's interest in the condition of the railroads and because of warnings of opposition by railroad labor groups. Ickes sought, instead, to have the bill referred to some other committee.

Railroad labor reportedly would acquiesce in contemplated pipe-line construction as emergency action but opposes continued operation after return to normal conditions on the grounds that the roads would lose important traffic. Pipeline construction advocates contend, however, that business lost by the railroads through pipe-line building is offset by increased short-haul traffic created by the pipe lines.

The railroads themselves, as well as spokesmen for railway labor, offer only highly controversial argument against the Cole bill and do not have the face to actively contest the measure. The roads have contended, through the Association of American Railroads, that even in event of transfer of half the tankers from the Gulf-Atlantic service, the railroads and remaining ships could move oil in large enough volume and rapidly enough to avert a shortage. But the claim is widely disputed and obviously extravagant, and it is believed to have been offered primarily as argument to show the ability of the rail lines to meet the emergency—as defense against threatened control of the railroads by the government.

While the Senate committee in charge of the Cole bill prepared for action, two other Senate committees busied themselves with oil. The Public Lands Committee was preparing for an investigation of underground resources, including petroleum, on public lands with a view to determining what use can be made of them in national emergency; and the Judiciary Committee, holding a hearing on the Gillette bill for divorce of marketing from other activities of the oil industry.

Divorcement Considered

The divorcement hearing which was continued until July 26 when Coordinator Ickes will be given an opportunity to express his views on the legislation if he so desires, was called at the insistence of Senator Gillette, who has been carrying on a one-man fued with the Department of Justice because of its alleged dilatory tactics in initiating and prosecuting the anti-trust suit.

Possibly indicating the esteem in which the committee holds the

Ralph K. Davies Deputy Coordinator

In naming Ralph K. Davies deputy petroleum coordinator, Harold L. Ickes is generally considered to have selected an energetic worker, an excellent administrator and a keen student of the industry with a good grasp of the business from a national and international standpoint. It is expected that his activities in his new industry-wide post will be constructive, and that he will do his best to keep the industry on an even keel during a period when unusual demands will be made upon it.

As he rose from a clerk to various executive positions and finally to vice president of Standard Oil Company of California, Davies specialized in organization, general administration and inter-departmental and inter-industry cooperation; experiences which should assist him as the industry's deputy coordinator.

R. K. DAVIES

Representing Standard Oil Company of California on various industry committees in the past, Davies has been a staunch supporter of stabilized marketing conditions and a strong advocate of strict production control to marketing level needs.

Born at Cherrydale, Virginia, in 1897, Davies was first employed by Standard Oil Company of California in 1912 at Fresno, California. He worked there and in the home office on clerical, sales and special organization duties until 1928, when his services were borrowed for reorganization of Anglo-American Oil Company at London. Upon his return in 1929, he was appointed vice president of International Bitumen Emulsions Corporation, foreign asphaltic emulsions subsidiary of Standard Oil Company of California. In 1931, he was elected director of Standard Oil Company of California and executive vice president of Standard Stations, Inc., and in 1935 was appointed vice president in charge of sales for Standard Oil Company. At various times he has served as director or official for several other company subsidiaries including California Pipe Line Company, Standard Pipe Line Company and Standard Oil Company of British Columbia.

During the San Francisco general strike in 1935, he headed the northwest emergency pool for the West Coast industry. He served as president of the Regional Compliance Committee to enforce the Federal Trade Commission's Code of Fair Marketing Practices and as president of the Fair Practices Association. He was a member of the Planning and Coordination Committee of the oil industry under NIRA, and as such spent much time in Washington.

legislation or possibly because the members were more interested in another measure also up for hearing, the Gillette hearing was attended and run by a single member, Senator Albert B. Chandler (Kentucky) who made few comments on the testimony and asked fewer questions.

Gillette told the Senate during the week that he was pleased at the appointment of Ickes as petroleum coordinator, but decried the action of Attorney General Robert H. Jackson in placing disposition of the government's anti-trust suits in the coordinator's hands. "When I see the legislative department in a democratic country, which we are trying to preserve for the world, short-circuited and detoured, and when I see these moves to turn over the judicial department to those who are defendants in the suits pending, and take their advice as to what action should be taken, I think I should be derelict in my duty if I did not call attention to it," he concluded.

The organized oil industry has worked out plans to invest over $300,000,000 in improved methods of transportation, the Senate Judiciary subcommittee was told June 12 by William R. Boyd, Jr., American Petroleum Institute vice president appearing at hearings on the Gillette "divorce" bills.

Boyd told the subcommittee that "this is their own money" and that he merely wanted to acquaint the committee with the fact that the industry is attempting to meet the emergency, and will reserve his complete statement on the legislation until a later session at which the opposition will be heard.

At the same session, Senator Chandler heard Paul E. Hadlick, representative of the Independent Oil Marketers' Association, assail the Department of Justice for failing to enforce the Elkins act against the pipe line companies. Under that act, he declared, the Government is entitled to $2,800,000,000 from companies which own pipe lines because the profits of pipe line operations represent a rebate, treble the amount of which could be recovered; the sum suggested represented the amount which could be collected in this way on the profits made in the past six years.

The three Gillette bills providing for the divorce, respectively, of production, pipe lines and refining from marketing were vigorously supported by representatives of the independent jobbers who charged that the integrated companies were using profits from other branches of the industry to subsidize the marketing of petroleum with the result that prices are being kept so low as to threaten the existence of the independents.

Appearing as the first witness, Senator Guy M. Gillette, author of the legislation, reviewed its history, charging that current opposition to it as inimical to national defense is only a "cloak" and declaring that the people now opposing it fought it long before there was a national defense emergency.

The Senator called attention to the fact that the Department of Justice has suits pending against oil companies in the Delaware and Indiana courts involving a total of $200,000,000, adding "pressure is being used to drop the cases in the interest of national defense. But the defendants have $200,000,000 at stake. I am not accusing them, but if I had $200,000,000 at stake, I would have great difficulty not to consider that."

W. J. Petersen, Washington representative of Pacific American Steamship Association, voiced the belief that the bills, "by implication," go further than their authors intended. His association is in accord with the idea that the petroleum industry is to be protected by the separation of the several branches, but the definition of marketing would possibly affect oil-burning vessels if they attempted to sell the excess of their bunker crude oil.

A. C. Gienapp, Manchester, Iowa, voiced the support of the Iowa Independent Oil Jobbers Association, of which he is secretary, declaring that all the independents are asking is "an equal opportunity to make an honest living." Passage of the Gillette bills, he said, would not increase costs to consumers and would give the independents a feeling of security so that they could expand operations and spread employment.

Gienapp was critical of the manner in which transportation charges on petroleum are based, asserting that the three groups—gasoline, kerosene and lubricating oils—all move on the basis of 6.6 pounds to the gallon whereas gasoline should move on the basis of six pounds, kerosene 6.6 pounds and lubricating oils 7.4 pounds. The present arrangement, he argued, means a profit for the companies of between 1 and 1½ cents a gallon on gasoline.

Nothing less than divorce will keep the independents in business, it was asserted by Robert W. Hadley, Jefferson City, Mo., secretary of the Missouri Independent Oil Jobbers Association. Opposed to the bills, he charged, is the "biggest monopoly in the world."

The integrated companies also were attacked and the bills defended by M. B. Whiting, president of the Virginia Petroleum Jobbers Association, and H. J. Stoke, Roanoke, Va., vice president of the Roanoke Oil Company.

Oil Prices Now Controlled

The responsibilities and authority of the petroleum coordinator have not been fully or clearly defined, but it is evident that henceforth and without delay, the federal government, through the coordinator and the Office of Price Administration and Civilian Supply, will exercise strict control over prices of crude oil and refined products.

The OPACS last week made it clear that it will not countenance any increases in prices unless they can be shown to be necessitated by advances in cost. In a telegram June 10 to Standard Oil Company of Ohio, OPACS administrator Leon Henderson asked postponement, pending a discussion, of an announced increase by that company of ½ cent a gallon in Diesel, tractor, and furnace oil.

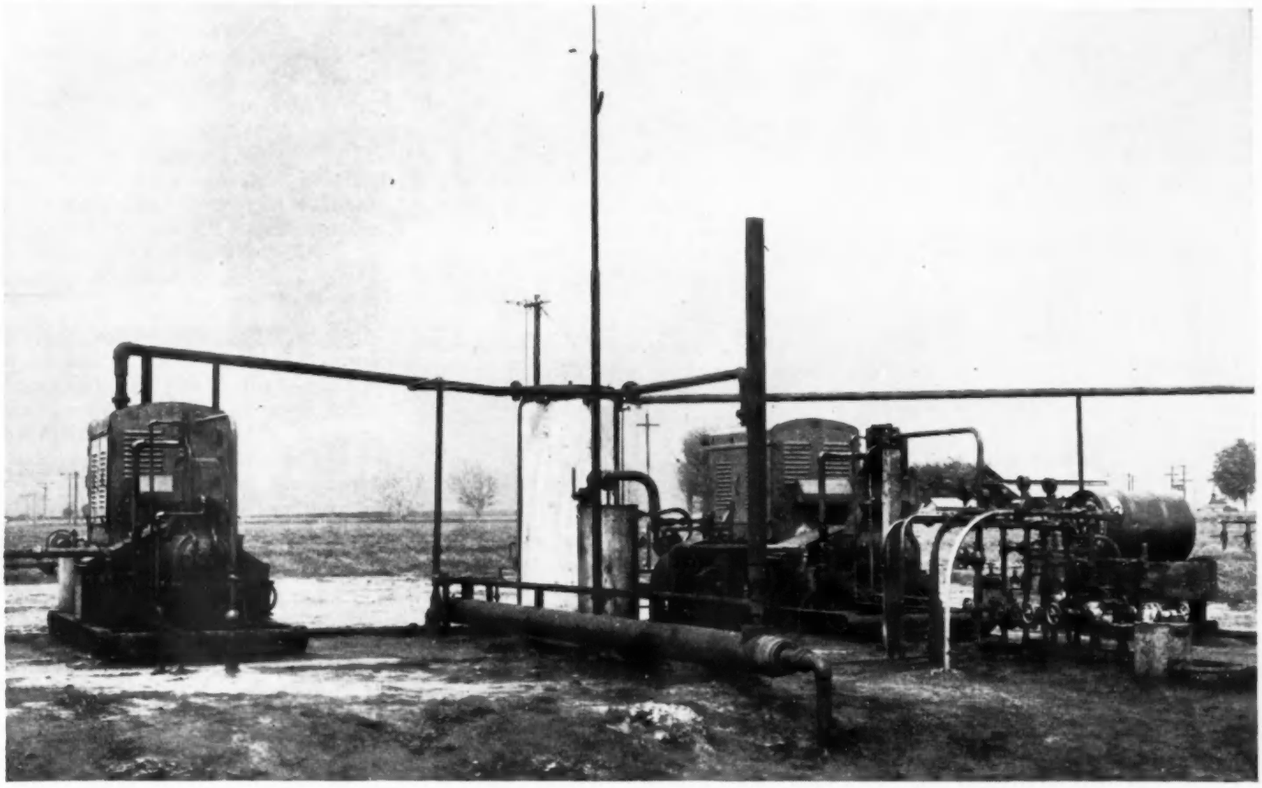
Meawhile, the OPACS postponed until July 1 action looking toward a reduction in the price of California crude oil and gasoline to the May 22 level, following a meeting of its representatives with California producers at San Francisco on June 7. Between now and July 1, the officials of the price agency will study data to be submitted by small, high-cost producers.

Fuel Scarcity Foreseen

The oil-poor industrial East last week was menaced with a shortage of another equally important fuel—coal—as the Bituminous Coal Commission warned consumers to buy now for next winter or face the possibility of doing without adequate supplies.

The OPACS will undertake an extensive campaign to push summer coal buying in both the East and the Middle West in the hope of enabling the railroads to move

[*Continued on page 49*]



Usually wasted radiator-water heat and exhaust heat from these two hydraulic pumping unit engines is being used to substantially reduce fuel costs of the boiler heater used in heating lease oil, as well as the oil produced by any single well on special gauge. The radiator-water heat exchanger lies horizontally between the two engines.

Engine Heat

Used Advantageously on Hydraulic-Pumped Lease

By GILBERT M. WILSON, Staff Writer

USUALLY wasted radiator-water heat, as well as heat obtained from the engine-exhaust pipes, is being utilized to good advantage by a company operating a number of hydraulic-pump-equipped wells in one of the California fields from two central locations.

The cost of the installation of a combined radiator water and engine-exhaust-heat exchanger system has proven small compared with the savings being realized in boiler fuel, power-oil heating, and the elimination of extra handling of crude oil in lease tanks.

The heat-exchange system consists of two independent parts: (1) a unit that derives heat from the hot engine water from the two engines, and which heats all the oil, including power oil, coming from the wells, and (2) a unit that absorbs heat from the exhausts from the two engines to heat the fluid produced by any single well that may be on special gauge, the heat aiding in dropping out the water in the gauge tank.

The unit utilizing the radiator water heat consists of a 20-foot length of 8-inch casing lying horizontally along the ground between the two engine units, filled with 1-inch tubes. The tubes are sealed in a header at both ends, making it possible for the oil to enter one end, run through the tubes and pass on out the other end. Water leaving the engines at approximately 180° F., passes through a 2-inch pipe that runs along the top of the 8-inch pipe, and enters the container near the end from which the oil is discharged. The water pumps on the engines force this water back around the outside of the smaller oil tubes until it passes out of the chamber at the opposite end to return to the engines.

At the point where the 2-inch hot-water line enters the chamber, a 2-inch tee and swage was placed in the line to permit installing a 4-inch riser extending vertically into the air several feet higher than the level of the radiator tops. The purpose of this is to permit steam or air pockets to escape from the circulating system before the water enters the chamber.

The radiator under normal con-

Exhaust from the engines is piped into a cylinder cut from a discarded boiler stack where it heats oil that is circulated through a coil of 1½-inch pipe. The exhaust then passes on out through a stack at the bottom of the chamber.

ditions is not included in the circuit, but should the water temperature rise to 190 degrees or higher, the engine thermostat automatically opens the radiator to circulation, cooling the water down to the working temperature.

The tubes in the chamber have a capacity of 1200 to 1500 barrels of oil per day. The oil passing through the system enters at an average temperature of 80 degrees. Depending upon the rate of production and the temperature of the outside air, a gain in temperature of 40 to 50 degrees is obtained when the oil is circulated through system. A typical example may be cited where a 980 barrel per day production rate, representing the total fluid being produced on the lease, was entering at 80 degrees, and leaving at 120 degrees. On a hot day this final figure might have been raised to as high as 130 degrees.

All the oil thus heated then goes through a boiler heater to be raised to a final temperature of 150 degrees, which is sufficient to cause water and emulsion to drop out, and at the same time impart sufficient heat to the oil to allow a certain percentage of it to be taken up by the pumping units and be returned to the hydraulic pumping system.

A worth-while saving in boiler fuel gas is being made by the use of this simple heat exchanger, as a rise of only 20 to 30 degrees of heat is required of the single boiler, instead of approximately 70 degrees if the exchanger were not used.

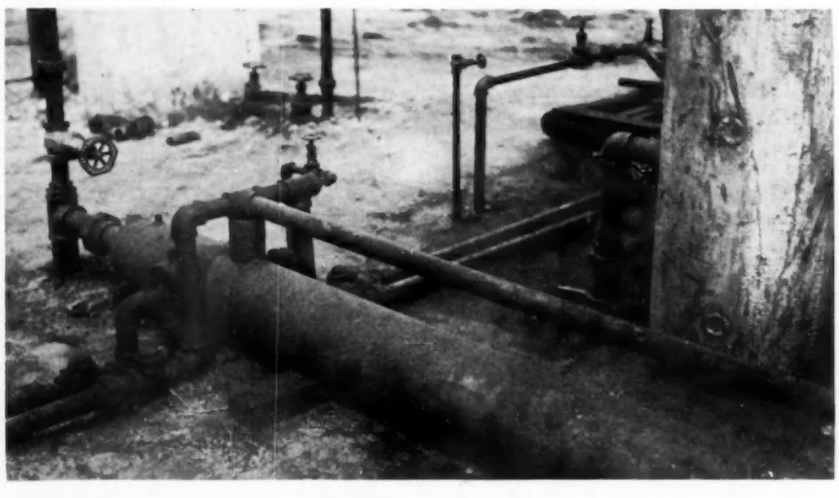
The second unit, taking heat from the collective exhaust from the two engines, consists essentially of a closed steel cylinder 8 feet tall and 3 feet in diameter, cut from a section of discarded boiler stack. A layer of insulating material covering the outside of the chamber aids in maintaining the temperature at as high a point as possible. A length of approximately 225 feet of 1½-inch pipe is coiled around the outside of a length of 10-inch casing that stands in the center of the inside of this chamber.

Oil from the well that is under special gauge enters the 1½-inch line from the bottom of the coil, and traveling upward, passes out the top and on over to the tank being gauged.

The exhaust from each engine enter tangentially from different points at the top of the cylinder, circulates around the oil tube coil and escapes through a 6-inch exhaust port opening out from the bottom. An exhaust line running from the nearby shipping pump engine also is connected into the chamber so that heat from its exhaust also may be utilized while that engine is running.

As in the case of the radiator water heat exchanger, temperature rises obtained in this heater depend upon the volume of oil being pumped through the coil. As an example, fluid being pumped at a 380 barrel per day rate entering at 80 degrees, passed on out at 123 degrees. In another case, fluid being pumped at a 249 barrel per day rate entering at 78 degrees, was discharged at 149 degrees.

While the piping arrangement makes it possible to use this heater in conjunction with the hot-water heater, its main purpose is to heat the oil from any single well, so that upon completion of the production test, a tank of oil free from water or emulsion may be shipped. Formerly, if the production from any individual well was not intended to be run along with the collective production obtained from the other wells, it had to be pumped cold directly from the well to the tank. Following such a test, a tank of dirty oil would have to be separately treated out and rerun through the boiler heating system, before it could be classed as pipe line oil.



Hot water coming from the radiators enters the opposite end of this tube-filled length of 8-inch casing, heating the oil that passes through the tubes. The 2-inch water inlet line passes along the top of the chamber, and the outlet line emerges from the header. The heated oil, coming from the end of the chamber, goes on to the tanks. The system is equipped with mercury-filled thermometer wells.

OIL WEEKLY EDITION

BAASH ROSS News

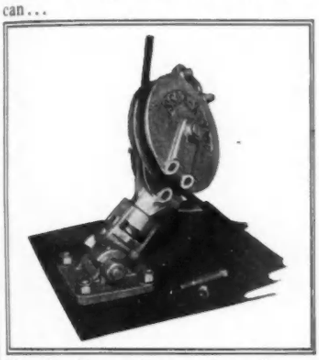
BAASH-ROSS TOOL COMPANY • LOS ANGELES • HOUSTON • NEW YORK

A MONTHLY BULLETIN COVERING NEWS OF EQUIPMENT AND OPERATIONS IN THE PETROLEUM INDUSTRY

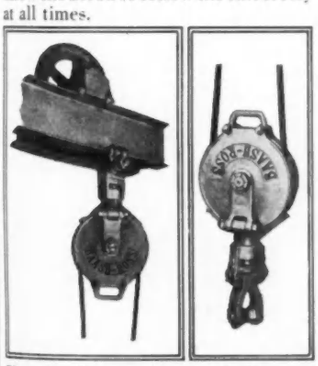
BUY ONE AND GET ALL THREE!

Here's a slick way to save yourself some money... Order out a BAASH-ROSS UNIVERSAL UTILITY BLOCK!

You buy just *one* piece of equipment—maintain just *one* piece of equipment... yet it does the work of THREE pieces of equipment. With its interchangeable accessories you can...



Use the floor plate and you have a FLOOR BLOCK—45° tilt in either direction against positive stops... full 360° roller-bearing swivel action to allow the block to follow the line freely at all times.



Use the beam clamp (left) and you have a BAILING AND CORING BLOCK with 45° tilt and 360° swivel action for minimum line wear and maximum flexibility.

Use the clevis (right) and you have a single-sheave TUBING BLOCK. The heavy-duty tapered roller bearings in the sheave and the 78,000 pound working capacity (S. F. 2) make it ideal for a wide variety of well servicing work. For this use a pin is provided to lock the swivel against rotation.

In addition, it has a side-opening feature for quick rope threading... high-pressure lubrication channels to both swivel and sheave... and many more performance features!

Buy *one* block and get THREE. Bulletin 8A tells how, complete with detailed illustrations and specifications. Send for it!

LOW STARTING RESISTANCE SMOOTHS OUT KELLY FEED

Interesting Engineering Aspects of Rolling vs. Sliding Friction

There's no place where accurate bit control is more vital than in today's high-speed drilling operations. And no kelly bushing in the field today can match the smooth effortless feed of the Baash-Ross Roller Kelly Bushing.

In fact, the first time you try out one of these Roller Bushings on your rig, you're going to be truly surprised ... because there's no way we can put down on paper the tremendous difference there is between the smooth, effortless feed of the Roller Kelly Bushing compared with conventional bushings. It's something you can find out only by experiencing it!

But we can give you some idea *why* a roller kelly bushing makes such a major improvement in your drilling efficiency by explaining here a few of the basic engineering advantages of *rolling* contact vs. *sliding* contact.

First, of course, is the obvious fact that when one surface *slides* against another, the frictional resistance is many times greater than when one surface *rolls* against another.

But not so well known is this important fact... that in the case of *sliding* friction it takes more effort to *start* the surfaces sliding than it does to *keep* them sliding once they are in motion. Engineers call this high resistance to starting "*the friction of rest, or 'static' friction.*"

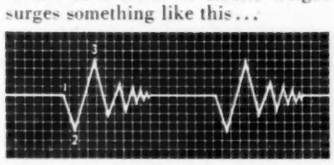
In the case of *rolling* friction, however, this high starting resistance is not present. As a well-known Mechanical Engineers' Handbook puts it...

In rolling friction "the friction of motion is practically independent of the speed and differs but slightly from the friction of rest. It follows, therefore, that the starting resistance is low."

This basic engineering fact has a very important effect on the efficiency of your kelly feed and here's why...

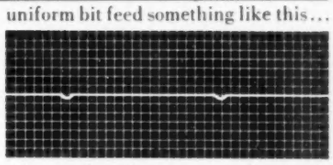
With the conventional type kelly bushing, as you let up on the brake to "feed off" weight to the bit, there is relatively high initial resistance to be overcome just to set the drill string in downward motion. Once it starts moving, however, the friction immediately decreases, allowing the drill string to drop faster... with the result that—before the driller can check its acceleration—too much weight has been put on the bit.

For this reason, it is virtually impossible for the driller to achieve sensitive bit control through the conventional kelly bushing... because he must first "overfeed" the weight to start the string moving and then he must try to "catch" the weight before the string accelerates too fast. This results in a series of erratic weight surges something like this...



***First, due to high starting resistance in the bushing, the brake feed gets ahead of the actual kelly feed (1 to 2). Then, as the brake checks the rapidly accelerating string, it throws a sudden tension surge into the drill pipe (2 to 3). Finally, after a series of "harmonics," the weight on the bit levels off only to have the cycle repeated at the next weight "feeding." The severe compression and tension surges set up, coupled with the torsional load already in the pipe, shortens equipment life and materially reduces drilling efficiency.**

Contrast this erratic bit feed with that of the Baash-Ross Roller Kelly Bushing. Here, due to the rollers, the starting resistance is practically negligible... which means that there is no high initial resistance to be overcome each time weight is fed to the bit. Instead of "overfeeding" the weight, it is only necessary to feed off the exact amount of weight the bit requires, resulting in a s-m-o-o-t-h, uniform bit feed something like this...



***Because the drill string responds instantly to the brake, there is only a slight momentary "dip" as the weight is fed off. Result—better drilling control and longer equipment life.**

This may seem a little technical, but you get the idea. With conventional kelly bushings you are constantly having to fight high starting resistance every time you feed weight to the bit... resulting in erratic bit feed that throws sudden torsional strains into the drill string... prevents sensitive drilling control... and reduces all-around drilling efficiency. With the Roller Kelly Bushing there is *no* high starting resistance to overcome and drilling control is far more efficient.

But, as we said before, there's only one way you'll ever find out what a tremendous difference the Baash-Ross Roller Kelly Bushing can make in smoothing out your kelly feed... in reducing sudden torsional strains on your drill string... in obtaining split-hair bit control... and in getting all-round superior drilling efficiency. *Try one out on YOUR drilling operations!*

The Baash-Ross Roller Kelly Bushing is available for both *square* and *hexagonal* kellys. Your nearest Baash-Ross representative will be glad to give you full information on this outstanding bushing development.

Your copy of Bulletin 4A which fully describes the Baash-Ross Roller Kelly Bushing is ready for mailing. Just drop us a card with your name and address.

WHY STRONG-ARM THE ROTARY TABLE TO RUN CASING?

Want to shave hours off your next casing job... and save a lot of unnecessary work, as well? *Then a Baash-Ross Split Casing Bushing is what you want!*

You don't strong-arm the rotary table out of the way to use it. Just drop it into the table in place of the regular master bushing and run casing *right through the table.*

It handles all casing sizes from stove-pipe to production string. And it enables the crew to run casing at exactly the same working level as drill pipe. That means faster, safer, more *efficient* casing operations.

When the casing job is finished, pull out the Split Casing Bushing, drop the master bushing back in place and you're ready to drill. No shifting or re-aligning the rotary table... no wasted time.

Find out about the many money-saving advantages of the Split Casing Bushing before your next casing job. Send for Bulletin 5A which gives detailed information.

***These charts based on actual comparative field tests.**

Sand Tapping Improving Stripper Well Operations

By F. R. COZZENS, Equity Oil & Gas Company

IT IS recognized that salt water retards formation of paraffin upon an oil sand and so lengthens the life of a producing well. It is also well known that in districts where salt water is prevalent, the lower portion of a sand body is generally saturated to an extent where continuous pumping is necessary to get the head of oil. Old time operators throughout Ohio and Pennsylvania stripper fields have learned that fact by costly experience, as is attested by hundreds of promising wells which are today abandoned because of inexhaustible reservoirs of water. From such experience, however, the present-day operator has learned a valuable lesson. In redrilling and reclaiming these fields he has learned to eliminate salt water almost entirely from newly drilled wells, and also to use it as a means of prolonging the life of wells already in production.

Sand Tapping

The water control method is known as "sand-tapping" and differs radically from the old timer's practice of drilling through the entire sand body and shooting with as much nitroglycerine as the bore face would hold. Such a practice generally brought the desired flow of oil, but in breaking up the low portions of sand it likewise brought in a deluge of salt water which flooded the well. Final results were usually determined by the amount of water and the operator's ability to exhaust it.

The modern method, instead, is to proceed with caution the moment the pay sand is reached in a newly drilled well. From records of previous drillings in his district the operator can estimate with considerable accuracy the thickness of the sand body. After first measurements are taken, he cores the sand to an estimated depth of one third its thickness. In most districts, the average penetration is four or five feet into the pay. In this penetration originates the reservoir which is prepared by lowering into the core, three 4x16-inch cartridges of Gelatin (about 30 pounds), 90 percent strength, straight N.G. grade. The charge is exploded by electric blasting cap and line, and it is seldom necessary to lift the casing. After the spoil has been stirred and removed by drill and bailer, the cavity is usually of sufficient size to hold 100 to 200 pounds of Gelatin of the same grade and strength. About 100 pounds of sand or earth for anchor is poured down upon this charge and it is necessary to lift out the casing to prevent damage. This charge is also fired by electric cap and line.

Small Chamber

The reservoir or chamber created by the two gelatin charges is relatively small in comparison with the old time "shot-hole" but after being cleaned of spoil, the operator is rewarded with fresh, lively oil, and a marked absence of salt water. It is generally found also that channels have been created through the top portions of sand, almost equal to old time shooting methods, allowing oil to flow freely into the reservoir while the low, and water-logged portions of sand are left undisturbed.

A reservoir thus made by sand-tapping requires brief pumping-out periods, two or three times daily, and it is quite often necessary to cement or "hang" the casing, since no shoulder can be left at the top of the sand. These features are amply taken care of, however, by the almost complete elimination of continuous pumping, and the saving on equipment and labor necessary in holding down a heavy volume of water. As production continues in a sand-tapped well, the pressure of water in the low portion of a sand is stimulated by the gradual withdrawal of oil from the reservoir. This means a constant pushing upward of oil from deeper recesses and cavities in the sand, thus yielding a more uniform production. Eventually, the force terminates in a seepage of salt water into the reservoir, but seldom is the amount sufficient to cause trouble. The majority of operators welcome this seepage since it aids in retarding paraffin on the sand.

Low Costs

In fully 80 percent of cases, costs of completing a sand-tapped well are less than those resulting from old time methods, since there are marked savings in explosives, labor, and cleaning time. From records taken from various districts where salt water is prevalent in either lime, grain, or conglomerate pay formations, sand-tapped wells show a marked tendency towards a stable settled production, and are especially well adapted to further reclamation methods when and if the need arises.

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West Central Wyoming Outlook Brightened by Deeper Pays

By FRANK B. TAYLOR, Staff Writer

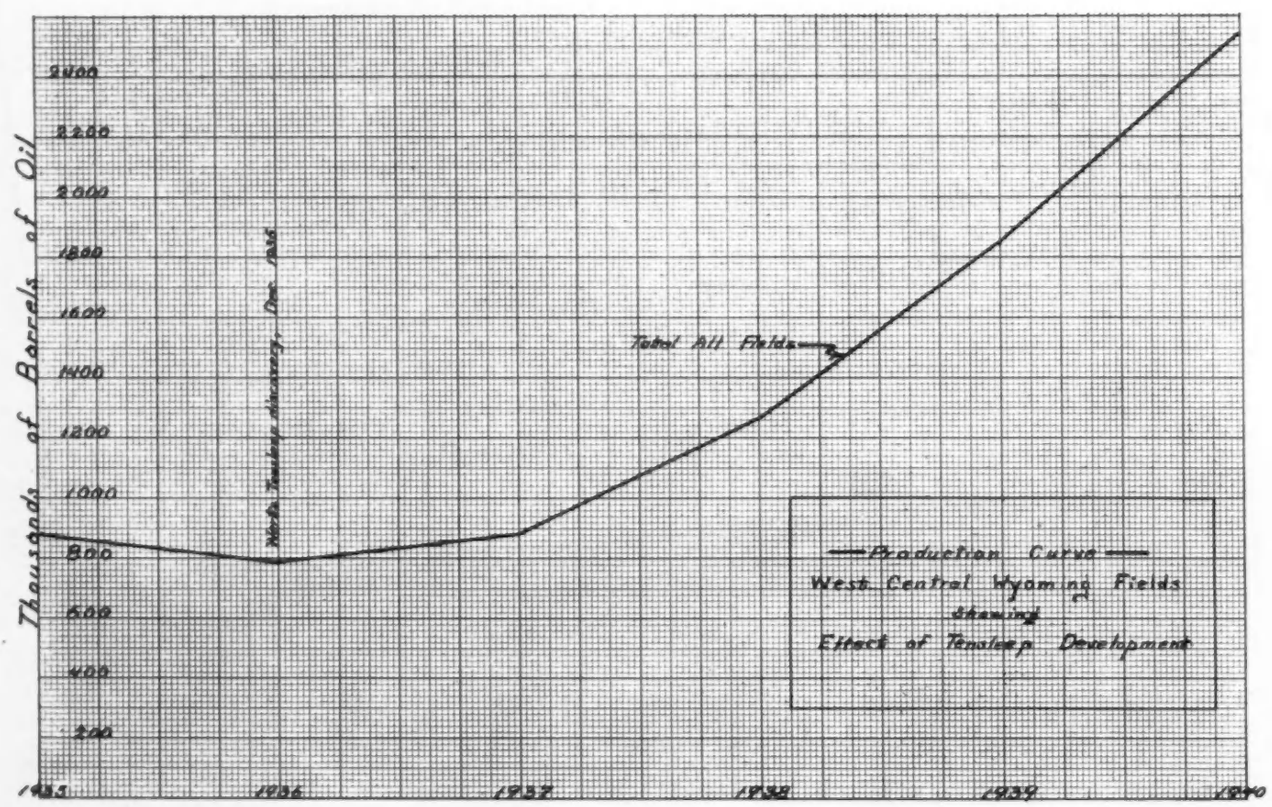
RECENT discoveries of prolific, high-gravity production on several structures in Lost Soldier district have materially changed the accepted future for the West Central Wyoming area. Subsequent to the first deep test, the search has been carried successfully to adjacent fields. Other producing prospects have yet to be given a deep test to the proven pay, and a still deeper formation is a possibility examined in only one of 15 fields. The importance of the new production is emphasized by the production curve which shows more than a 300 percent increase since the deeper discovery in 1936.

Past development in this section has resulted in the finding of a number of gas fields; and in some oil production. In the main, the oil was not in heavy demand by reason of its high sulphur content and its low gravity. Transportation was another deterent to active exploitation. There is an oil pipe line to Parco, a parallel oil and gas line to Casper, and another gas line from Big Sand Draw and Muskrat fields to Casper. With these facilities available, and as Rocky Mountain crudes are being transported east through the old Teapot line, there is an increased market for the area's production. Of major importance is the desirability of the crude being produced from the deeper formation, for it is 35 gravity, sulphur content is 1.3 percent or less and yields 31 percent gasoline and 5 to 14 percent kerosene distillate by straight-run distillation. Sulphur content of the naphtha - gasoline fractions is .06 percent.

Increasing Exploration

With these favorable factors prevalent, interest has gradually increased in the entire Basin area, and development of the stratigraphically deeper formations is steady. Seismograph and core-drill units have been on the job during the past two summers and will continue this year.

Prior to 1936, this area was important chiefly because of its gas production. Of the structures tested, 8 were found productive of gas only. The Frontier (Wall Creek), Dakota, Morrison and



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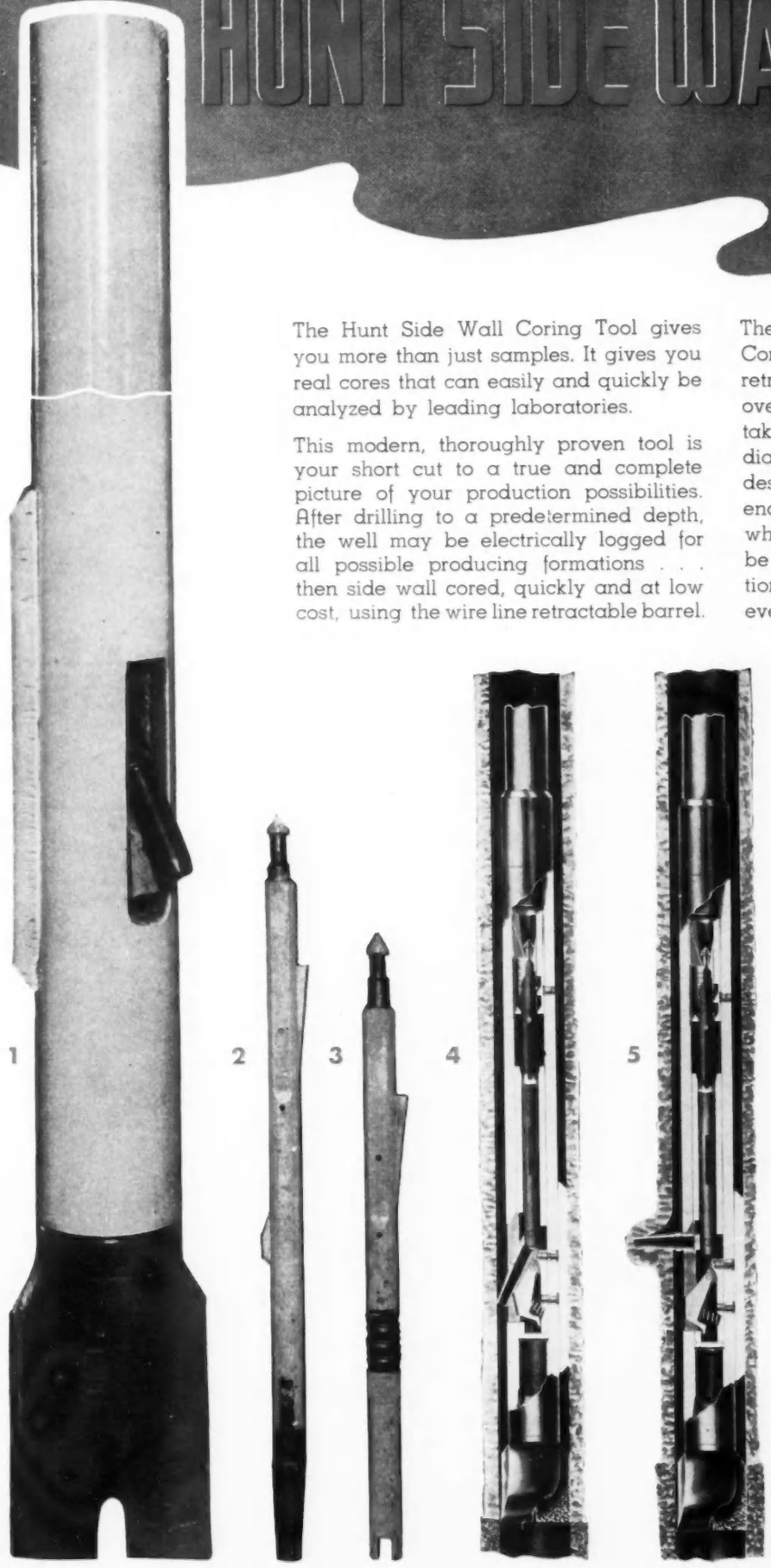

1. **Showing the tool, with wire line retractable barrel in position to receive the core.**
2. **Wire line retractable core barrel.**
3. **Circulation plug.**
4. **Core tube deflected, ready to penetrate side wall to take core.**
5. **Core tube in side wall after lowering of drill pipe has caused penetration. Drill pipe is now slightly raised, and core recovered by wire line.**

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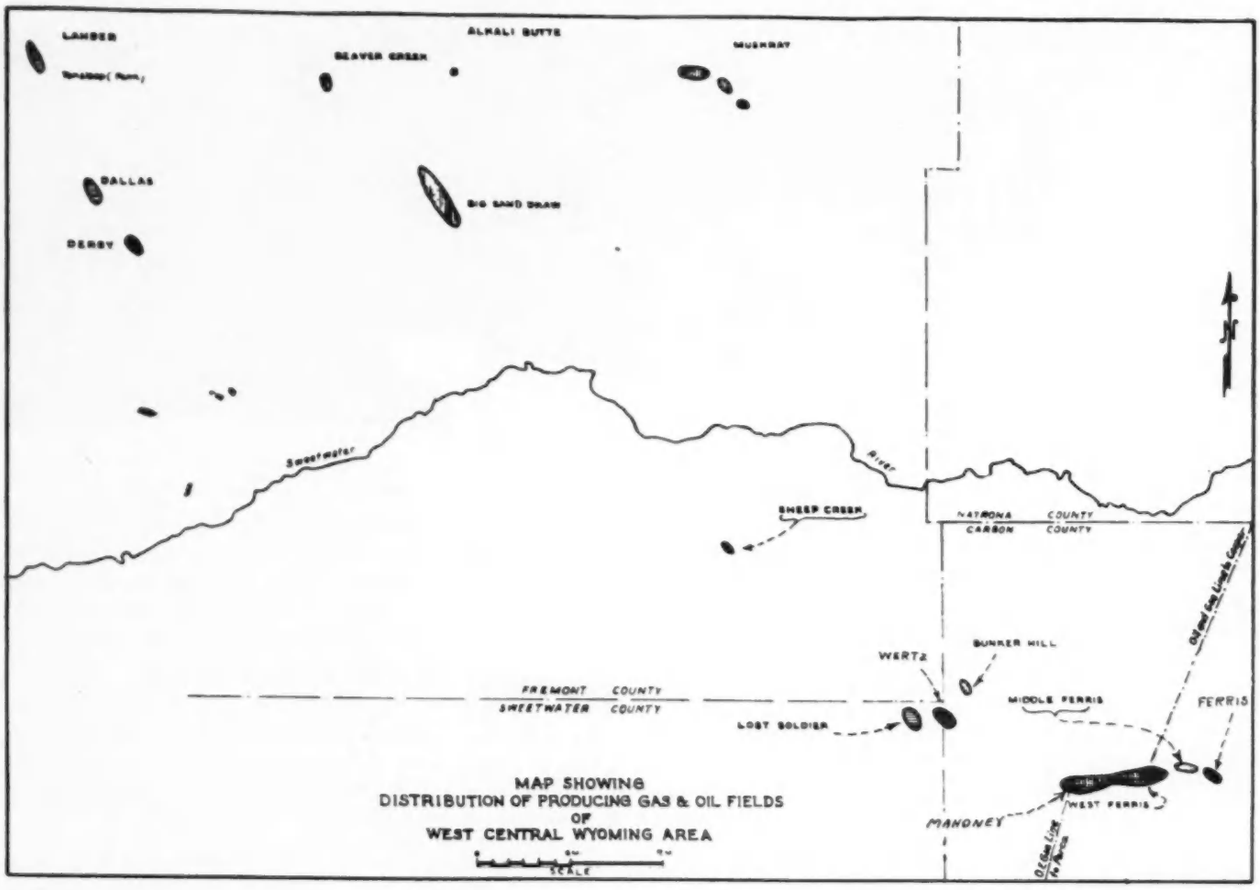

Sundance formations were the main gas-producing horizons. Lost Soldier field was a notable exception as it has accounted for about 19,000,000 barrels of light oil from Frontier, Sundance and Dakota sands.

Dallas, Derby and Lander fields were the only ones in which the Embar and Tensleep; the latter, the prolific new pay, were exploited. On these structures, close to the mountains, the more shallow formations are eroded off and older formations are close to the surface. The poor quality of the oil from these formations as produced in the three mentioned fields, and from other tests in more northern fields where only heavy oil was found in the sands, and also from the fact that in other structures of the Basin the Tensleep is expensive to drill by reason of depth, resulted in a somewhat negative outlook for future deep production. As a consequence, the area had been relatively dormant until 1936.

It was under these circumstances that Sinclair-Wyoming Oil Company drilled a deep test in the de-

Detail Data—West Central Wyoming Oil and Gas Fields

NAME	Discovery Date	Producing Formations	Accumulated Oil Produced to 1-1-41	Deepest Formation Tested
Alkali Butte	1928	Morrison	5,700	Chugwater
Beaver Creek	1937	Lakota	Shut In	Sundance
Big Sand Draw	1917	Wall Creek Lakota	Gas	Sundance
Bunker Hill	1936	Shannon	Gas	Sundance
Dallas	1883	Embar Tensleep	1,767,600	Tensleep
Derby	1883	Embar Tensleep	1,198,400	Tensleep
Ferris	1918	Dakota Mowry	Gas & 467,000	Embar or Upper Tensleep
Ferris (Middle)	1919	Dakota Sundance	Gas	Tensleep
Ferris (West)	1923—Gas 1940—Oil	Dakota Sundance Tensleep	Gas & 12,000	Tensleep
Lander	1914	Embar Tensleep	2,125,000	Tensleep
Lost Soldier	1915	Frontier Tensleep	20,597,000	Tensleep
Mahoney	1919—Gas 1930—Oil	Dakota Sundance Tensleep	Gas 277,000	Tensleep
Muskrat	1928	Frontier Lakota	Gas	Madison
Sheep Creek	1934	Embar	11,000	Tensleep
Wertz	1920—Gas 1936—Oil	Frontier Sundance Tensleep	2,367,000	Tensleep

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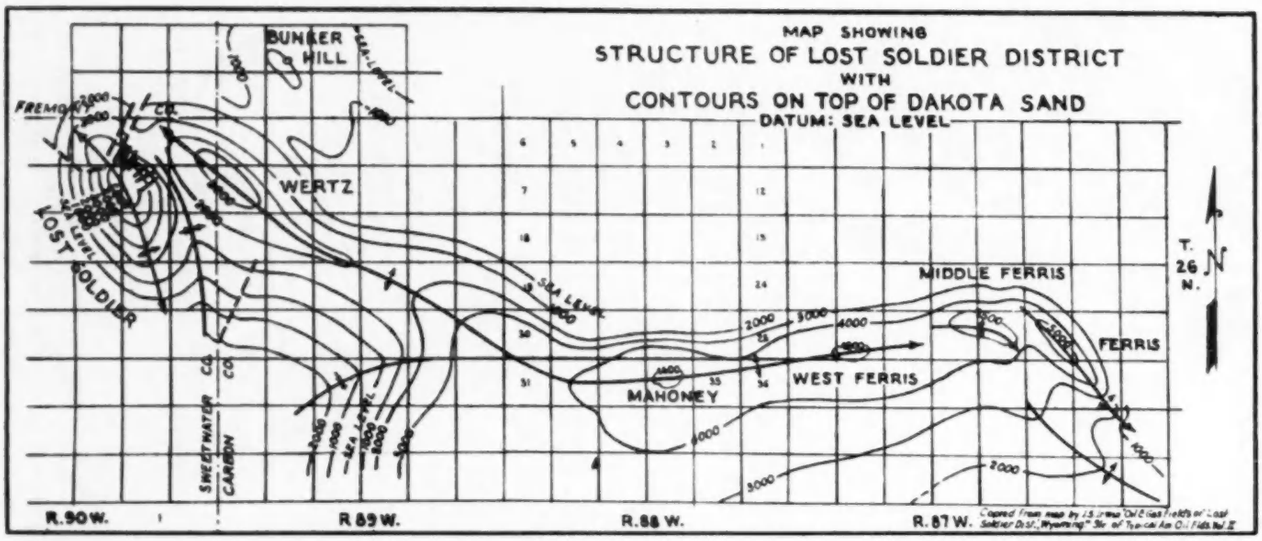

pleted Wertz gas field to complete a 2000-barrel well in Tensleep sand at 5870 feet. Subsequent drilling has accounted for a potential capacity of over 32,000 barrels daily in Wertz and adjacent fields. Making this development unusually attractive is the thickness of the sand body, from 200 to 400 feet, and from the per-acre reserve estimated as high as 30,000 to 40,000 barrels.

Regional Geology

West Central Wyoming is an oil province 180 miles in an east and west direction and 100 or more miles north and south. The area covers the southern portion and southwestward extensions of Wind River Basin. The accompanying map shows producing oil and gas fields which are chiefly along anticlinal trends. Areal distribution of geologic units ranges erratically from granite to Tertiary.

All the fields are situated around the edge of a main sedimentary basin, and relatively near the surface outcrops of basement complex. The stratigraphic column of the region is represented by sediments from Cambrian to Tertiary age. A major, diastrophic upheaval affected the area at the end of Cretaceous time so that all formations from Cambrian to Cretaceous are folded conformably. This allows Tertiary to lie unconformably on eroded older rocks, in this manner cloaking any structural deformation since their deposition.

Individual Fields

Alkali Butte, a small field, 10 miles north of Sand Draw, is a narrow anticline showing Steele shale as an outcrop. Some gas and non-commercial oil was shown in Shannon sands, and a test to the Big Muddy sandy lime made an initial of 550 barrels per day. This production quickly declined and the field is dormant.

Beaver Creek is a dome situated on the northwest plunging axis of Beaver Creek anticline, a fold roughly paralleling and to the west of the major Big Sand Draw line of folding. The indicated structural closure based on surface geology is approximately 100 feet but this may be increased at greater depths. A test drilled on this structure in 1938 discovered gas production in Morrison sand at 8244-8288 feet. A show of gas was also found in the Frontier sands, but the Sundance sand was barren at 8920 feet. Only one well has been drilled and no gas has been produced from the field.

Big Sand Draw field is located on the largest and most prominent independent closed anticlinal structure in the area. The axis is defined by surface outcrops of Steele shale and younger Cretaceous rocks. Gas production over an area of 3 miles long by 1 mile wide attests closure over at least this much structure although absence of subsurface information to the southeast and the absence of surface outcrops in the same direction has not allowed definition of structural limitations in this direction. Seismographic detail presents a structure considerably more extensive than has generally been conceived, particularly to the southeast.

The field has an asymetric structure with a closure of more than 1400 feet. The west flank is steep and the east relatively gentle. This folding has produced a subsurface axial plane that is substantially to the east of the surface structure.

Gas was discovered in the upper Frontier sands in 1917 and later in Lakota and Morrison. Some 60,000,000 cubic feet have been produced to January of 1941. Total gas reserve has been estimated at about 270,000,000,000 cubic feet, considerably more reserve than is credited to any other Wyoming field. While this field has not been drilled to the Tensleep, such a well might be favorably contemplated in the light of recent exploitation, and because of closure and areal extent of proven gas production. The deepest test on the structure was drilled in 1931 to Sundance sand, but is thought to have been ill-located and of little value as a reference.

Bunker Hill is a small, slightly elongated dome with a length of about 1 mile which is squeezed between the Wertz dome and the Ferris Mountains. It has an independent closure of about 700 feet and its culmination is 2800 feet structurally lower than the crest of the adjacent Wertz dome. A test drilled to 6791 feet at the crest of the structure in 1932 found all the normal producing zones of the Lost Soldier district, to and including the Sundance sands, barren. The Ohio Oil Company discovered small gas production in the Shannon sand at 1200 feet in 1936. The estimated 400 productive acres have been developed with 2

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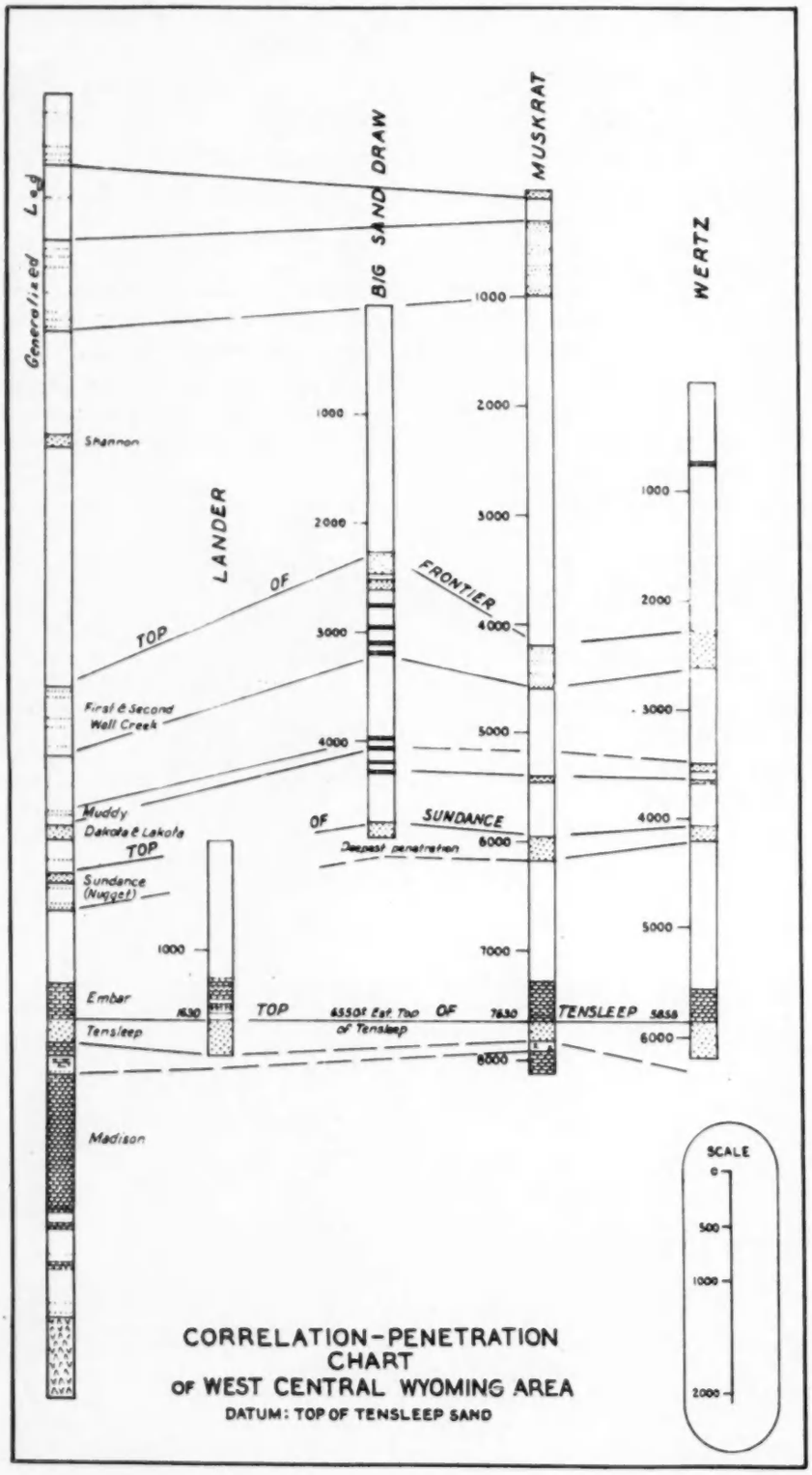
wells which produced a total of 89,000,000 cubic feet to January 1, 1940. This is the only closed structure of the Lost Soldier district in which the Tensleep sand has not been tested.

Dallas, Derby and Lander fields are located on three elongated, extremely narrow and steep closed structures which occur, from northwest to southeast in the order named, along a common anticlinal axis. The extreme steepness of this line of folding is due to its proximity to the major Wind River Mountain uplift. The Chugwater formation occurs on the surface in each of the fields and they all derive their production from the Embar and Tensleep formations.



CORRELATION-PENETRATION CHART
OF WEST CENTRAL WYOMING AREA
DATUM: TOP OF TENSLEEP SAND

The 35 wells of the Lander field range in depth from 1000 to 2500 feet and develop a productive area of 340 acres. The 37 wells of the Dallas-Derby fields range in depth from 800 to 1300 feet and cover a productive area of 350 acres. The productions of the Lander and Dallas-Derby fields to January 1, 1941, totaled 2,124,000 barrels and 2,947,000 barrels, respectively, and their production for the year 1940 was 90,000 barrels and 169,000 barrels, respectively. Unlike the Tensleep oil of the other productive fields of the area, the oil produced from these three fields has a relatively low gravity of 21 to 24 degrees API gravity and a relatively high sulfur content of 2.6 to 3.0 percent. It is suggested that the relatively sharp folding and shallow depth of the cap rocks and productive zones may have resulted in the loss of light fractions. Moreover these factors may also have contributed to the association of sulfur waters with the oil, and this association could in turn account for the sulfur content of the crude.

Ferris is a sharply folded, elongated dome on the southeast end of the main anticlinal axis which traverses the Lost Soldier district from northwest to southeast. It has an independent closure of 1200 feet. The productive area is 200 acres. Gas and oil has been obtained from fissures in the Mowry shale, from the Muddy, Dakota and Lakota sands, and very minor amounts have been produced from the Sundance sand. The total production of the 25 wells is 1,520,000,000 cubic feet of gas and 467,000 barrels of oil. Both the gas and the oil production from these zones has now been exhausted. A test of the upper Tensleep, which was drilled in 1928, produced several hundred barrels of 36-gravity oil with water.

Middle Ferris is a small dome 1½ miles long by ½ miles wide situated between the Ferris and West Ferris fields from which it is separated by structural saddles. The independent closure is 200 feet. Gas production was developed by 4 wells from the Dakota and Sundance sands. The field has produced 4,000,000,000 cubic feet of gas since discovery in 1919 and is now exhausted. The original productive area was about 500 acres. A test well was drilled to 4623 feet

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on the crest of the anticline but found water in the Tensleep.

West Ferris is an elongated elliptical anticline on the same axis as Mahoney and to the east of it. A structural saddle separates the fields. The independent closure is 500 feet. Dakota and Sundance sands are the source of gas while the Frontier is water bearing. Production from the 14 wells which have penetrated these measures totaled 24,700,000,000 cubic feet to January 1, 1940. Gas from this reserve has been exhausted. The original productive gas area was 3500 acres. A test well was drilled to the Tensleep during 1940; top of the sand was encountered at 4272 feet and it was found oil-saturated to 4310 feet, but was reported water saturated at 4316 feet, total depth. After plugging back, the zone produced at a maximum rate of 200 barrels per day.

Lost Soldier is situated on a well defined symmetrical dome with 3500 feet of independent closure. Oil production was discovered in the Frontier in 1916. Subsequently oil was also found in the Dakota-Lakota group and in the Sundance sand. Production from 78 wells reaching these zones, which occur from 300 to 2150 feet, totaled 19,000,000 barrels to January 1, 1941. These zones have a productive area of 450 acres and their reserves have been estimated at less than 7,000,000 barrels. Their development is complete. This oil is 29 gravity but is comparatively deficient in light fractions.

Production was discovered in the Tensleep in 1930 but development of the Tensleep was not undertaken until after the discovery of the prolific Tensleep production at Wertz. Since that time 2 additional wells have been drilled and the discovery well has been deepened to yield a total potential capacity of more than 3500 barrels daily from the Tensleep. The top of the sand is encountered at 3900 feet at the top of the structure. The maximum penetration of the oil zone to date has been 375 feet. Development of the Tensleep is now proceeding with one string of tools. Tensleep production to January 1, 1941, totaled approximately 1,600,000 barrels of which about 450,000 barrels were produced in 1940. The present average daily Tensleep production is approximately 3500 barrels daily.

Mahoney is a broad, oval dome southeast of the Wertz dome and along the same anticlinal axis. The culmination at Mahoney is 1300 feet structurally higher than the culmination at Wertz and the independent closure is 320 feet. Gas production was discovered in 1919. Dakota and Sundance sands are the source of the gas production since the Frontier sands were found water bearing. Production from the 15 wells which have exploited these measures totaled 57,726,000,000 cubic feet of gas to January 1, 1940. Production for 1939 was 540,000,000 cubic feet. The gas carries only a very small amount of gasoline. Productive gas acreage was originally 1600 acres. A test drilled in 1930 indicated oil production of only 75 barrels daily from the Tensleep. However 3 wells which have been completed from the Tensleep since the discovery at Wertz have yielded a combined daily potential capacity of over 2000 barrels. The top of the sand is encountered at 4300 feet at the crest of the structure. The maximum penetration of the producing zone is 230 feet and it is possible that greater penetration will increase the productivity although one of the wells reportedly encountered water below the oil saturation. Oil production to January 1, 1941, totaled 277,000 barrels of which 142,000 was produced during 1940. One string of tools is occupied with deepening work on the existing wells and one string is drilling new wells.

Muskrat actually consists of 3 small domes situated along the crest of a long anticlinal axis which plunges to the northwest away from the Sweetwater uplift. The northwesterly dome is the largest of the three with a length of less than 2 miles. Apparently the maximum structural closure on any of the structures is slight. After several failures gas production was discovered in the Frontier on the northwesterly dome in 1928. Since that time one failure and two successful gas wells have been completed from the Frontier and Lakota sands on this structure. The structure has been tested to the Sundance and found barren in that formation.

The middle dome, which is smaller than the northwest dome, was tested to the Madison in 1937. This is the greatest stratigraphic penetration obtained by any well which has been drilled in the area. Oil saturation was encountered in the top 25 feet of the Embar formation and a test of this zone filled the hole with oil. However, the limestone proved to have insufficient permeability to yield commercial production. The Sundance, Tensleep and Madison formations were barren but gas was developed in the Lakota sand on plugging back and perforating the casing. The southeasterly dome of the field has not been tested. It has been estimated that the productive area of the field totals 500 acres.

Production from the 4 wells exploiting the Frontier and Lakota sands totaled 10,900,000,000 cubic feet to January 1, 1940. The gas production for 1939 was 3,100,000,000 cubic feet. One of the 4 gas wells has reportedly gone to water.

Wertz dome is adjacent to the Lost Soldier structure but its crest is 2000 feet structurally lower than the crest of that field. It is an elliptical anticline on the northwest end of the long anticlinal axis which passes through the Mahoney, West Ferris, Middle Ferris, and Ferris fields. The independent closure is 1400 feet. Gas production was discovered in the Dakota in 1920 and gas was subsequently developed in the Lakota sand. Only a minor amount of gas was found in the Frontier and water trouble has been found inherent in the two wells which have tested the Sundance gas sand. Production from the 6 wells into these horizons totaled 62,665,000,000 cubic feet of gas to January 1, 1940. The production for 1939 was 420,000,000 cubic feet. It has been estimated that the field has produced more than 100,000 barrels of natural gas gasoline. Gas reserves have been virtually exhausted.

The productive gas area was originally 500 acres. A deep test drilled in 1936 was completed for 2000 barrels of 35-gravity oil from Tensleep sand at 5870 feet. Five wells have since been completed from the Tensleep with initial potentials ranging from 900 to 8300 barrels daily. The maximum penetration of the producing zone is 340 feet and its total thickness has not been determined. The lower part of the zone has been found more productive than the upper part. The potential capacity of the 6 wells is 26,000 barrels. Oil production to January 1, 1941, totaled 2,367,000 barrels of which 1,102,000 barrels was produced during 1940. Average daily production during 1940 was 3020 barrels. Development of the oil zone is now proceeding with 4 strings of tools. Present indications are that the Tensleep oil zone will be considerably more extensive than the overlying gas measures.

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L. E. "Sut" Buford, Brown Oil Tools cutting and fishing tool operator, photographed with the Brown Outside Cutting Tool and part of a fish from 1-A Broussard, Erath field, Coastal Louisiana.

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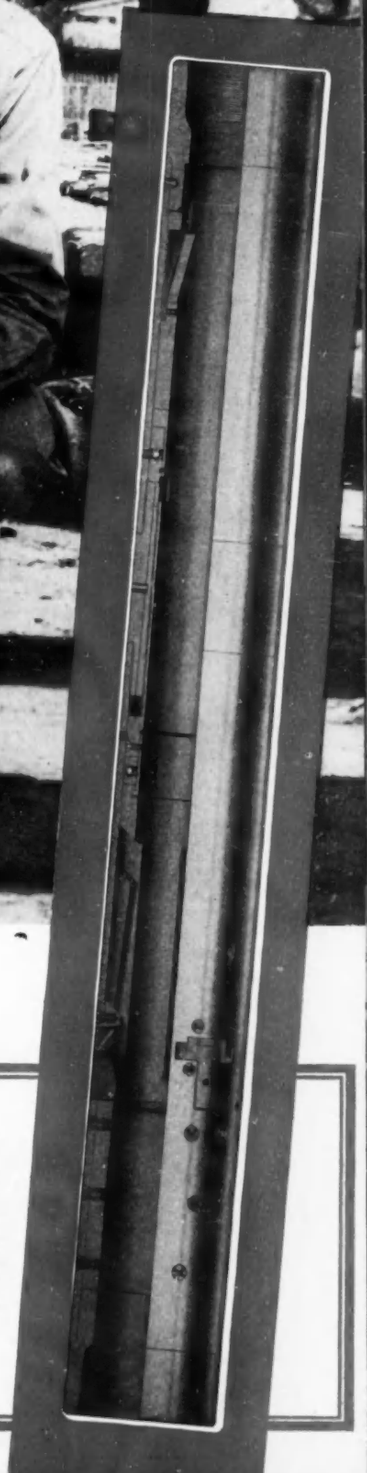

Cross-section view of Brown Outside Cutting Tool which is built in sizes to cut and pull any type of drill pipe now being used by the industry. This tool will cut and pull—in a single round trip—as much drill pipe as can be washed over safely.

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Economic Selection of

Oil Field Equipment

PART 3

Use of Reservoir Data in Determining Well Capacity

By EMORY N. KEMLER

Associate Professor, School of Mechanical Engineering, Purdue University

PREVIOUS articles, published May 28 and June 9, outlined the general economic principles and general behavior of various types of reservoirs and the influence of operation of the reservoir on well performance. In the discussions given the well capacity was assumed to be known and assumed to remain the same over the life of the well.

ACTUAL well capacities and prediction of their future trends are necessary in economical selection of oil field equipment. Fortunately, it is possible to determine actual well capacities and also to predict future well capacities for both water-drive and gas-drive pools from reservoir data.

The production rate of a given well is assumed to be proportional to the amount of its bottom-hole pressure, or the back pressure on the formation is reduced below the reservoir pressure. Expressed analytically this is

$$Q = C\,(P_m - P) \qquad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (1)$$

where Q = production rate in barrels per day.
C = well characteristic or productivity index factor.
P_m = reservoir or closed in bottom hole pressure in pounds per square inch.
P = bottom hole pressure when well is producing at rate Q.

This relation has been found to be sufficiently close to use for most normal conditions. For flowing wells or where wells are making considerable quantities of gas the relation does not hold too closely. Since no better relation is available and since it is within the limits of accuracy required it will be followed herein.

The limits of use of the productivity index factor as a constant and the manner in which it varies in cases where it is not a constant has not been investigated fully. Table 1 lists some typical information on two flowing wells.[1] In the case of well **A** the bottom producing pressure was high and the withdrawal rates correspondingly low. For these conditions the productivity index factor was essentially constant. In the case of well **B** the bottom-hole flowing pressure was much lower and the production rates covered a much wider range. At the higher withdrawal rates and correspondingly lower pressures the productivity index factor decreases. This is in accordance with the effect shown in Figure 1, as will be explained later. As a general principle it appears that the productivity index factor for a flowing well is practically constant at low rates of flow and when the bottom-hole flowing pressure is not reduced much below the static value.

Table 2 shows data on a pumping test taken at two rates of production.[2] In this case the productivity index factor is constant. For the case of wells making only water the factor would be expected to remain constant within the limits of experimental error.

Figure 2 shows a plot of bottom-hole flowing pressure against production taken at two different periods.[3] Over the period covered there appears to be no change in productivity index factor. The collection of additional data on such cases should be very helpful in predicting future well performance. This is particularly true in the case of wells which later in their life make considerable percentages of water.

The well characteristic or productivity index factor is the barrels per day produced per pound pressure that the bottom-hole pressure is decreased below the static or reservoir pressure. Theoretically, C, or the well characteristic, can be linked to the physical properties of the reservoir and the fluid being produced by the following expression

$$C = \frac{2\pi K b}{\mu \log_e \frac{r_w}{r_b}}$$

where K = Effective permeability of formation in foot-lb.-sec. units.
b = sand thickness or penetration in feet.
μ = viscosity of fluid in ft-lb.-sec. units.
r_w = radius of drainage or of the pool in feet.
r_b = radius of well bore in feet.

The well characteristic is, therefore, a complicated factor and would be expected to vary with the

TABLE 1

Flowing Well Data

Bbls. Per Day	Bottom Hole Pressure	Productivity Factor	Tubing Pressure	Gas Oil Ratio
Well A—Depth 3670′—2″ Tubing				
0	1210	....	....	....
5.6	1185	3.8	185	675
50	1065	3.5	210	340
105	921	3.6	190	190
Well B—Depth 3500′—3″ Tubing				
0	630	....	....	....
40	610	2	325	2820
72	610	3.6	300	2030
216	550	2.7	275	1970
504	395	2.2	160	1750
763	230	1.9	40	....

[1] A Preliminary Investigation of Flowing Wells by Emory N. Kemler and G. A. Poole, A.P.I. Proceedings, 1936; also The Oil Weekly, Nov. 23 and Nov. 30, 1936.

[2] Factors Affecting the Application of Pumping Units by Emory N. Kemler; A.P.I. Proceedings, 1938.

[3] Productivity Index by M. L. Haider, A.P.I. Proceedings, 1936; also The Oil Weekly, May 18, 1936.

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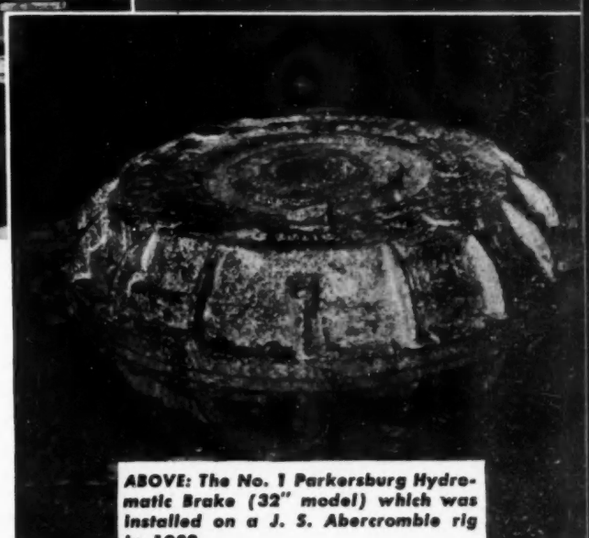
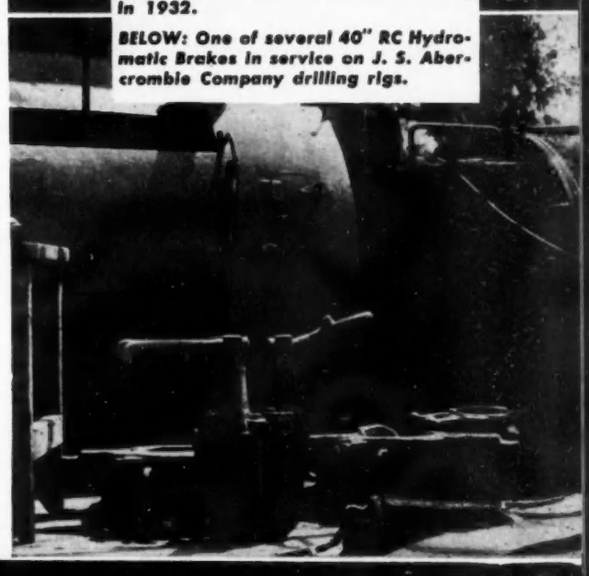
A Parkersburg 40" RC Double Rotor Hydromatic Brake on an Abercrombie rig in a deep Gulf Coast field.



ABOVE: The No. 1 Parkersburg Hydromatic Brake (32" model) which was installed on a J. S. Abercrombie rig in 1932.

BELOW: One of several 40" RC Hydromatic Brakes in service on J. S. Abercrombie Company drilling rigs.



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permeability of the formation, the viscosity of the fluid being produced, the well spacing, and the well bore. Since the well characteristic is directly proportional to the permeability and sand thickness and inversely proportional to the viscosity, these factors would have to be known to give some idea as to the performance of the well.

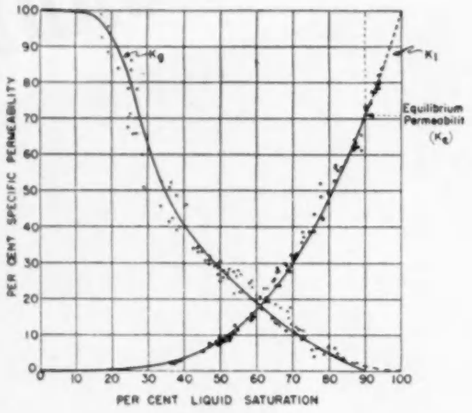

FIGURE 1

Permeability-saturation relation for unconsolidated (70-120-mesh) sand with specific permeability of 17.8 darcys.

The permeability for a reservoir having a single liquid and without any gas in solution should remain constant over the life of the field. In case the liquid has gas in solution the permeability should not be affected as long as the bottom-hole flowing or producing pressure is above the saturation pressure. If, however, the bottom-hole pressure drops below the saturation pressure the permeability with respect to

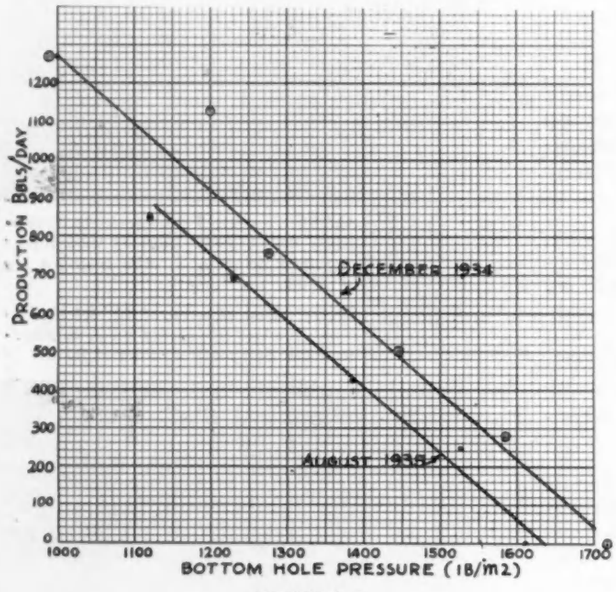

FIGURE 2

Bottom-hole flowing pressure against production at different periods.

the liquid decreases and the capacity of the well to produce oil will be decreased. This change is a result of the fact that under the new conditions free gas occupies part of the pore space, thereby reducing the effective liquid pore space and decreasing the liquid permeability of the formation. Figure 1 shows how this permeability changes with the percentage of liquid in the formation.[4] This curve shows that as the liquid in the formation decreases the permeability with respect to the liquid decreases. This explains the reason why a well in a gas-drive pool has, in general, a decreasing productivity factor at higher rates of flow, and also why they apparently have a much

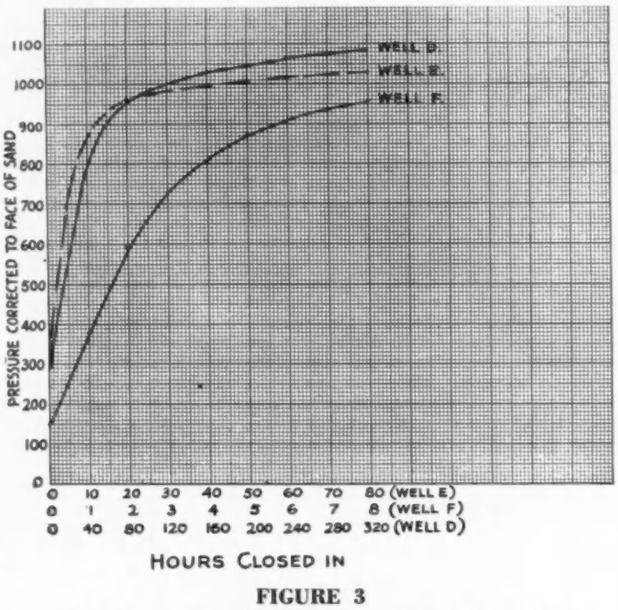

FIGURE 3

Build-up curve plot of pressure data shown in Table 3, against time.

higher capacity before they reach the steady-state condition than would be expected considering the fact that the pressures around the well bore is higher than under steady-state conditions.

The viscosity of the fluid will also vary over the life of the field if there is any gas in solution. Information available indicates that the viscosity may be increased several fold as the pressure decreases and the gas comes out of solution. If water is being produced later in the life of the pool the well characteristic might possibly increase because of the reduced viscosity. Any deposition of chemicals such as paraffin or carbonates from the water or oil in the formation which might be a result of a reduction in pressure, in solubility or in temperature as a result of the gas coming out of solution, would have the effect of reducing the permeability.

Use of Bottom-Hole Pressure Data to Determine Well Characteristic

The application of the above principles to determine the well capacity can be made on the basis of either bottom-hole pressure data or on the basis of core analysis and sampler or viscosity data. The use of bottom-hole pressure or build-up data will be considered here since it is more easily applied and can be applied to any well, whereas the use of core analysis data can only be used in cases where complete cores were taken. Also, data on the properties of the fluid produced would have to be known to use the core analysis approach.

As has been indicated previously the production of an oil well depends on the difference between the static reservoir pressure and the pressure at the face of the formation when the well is producing, and the productivity index of the well. If a well has been

[4] The Flow of Gas-Liquid Mixtures Through Unconsolidated Sands by R. D. Wyckoff and H. G. Botset, Physics, Vol. 7, Sept., 1936.

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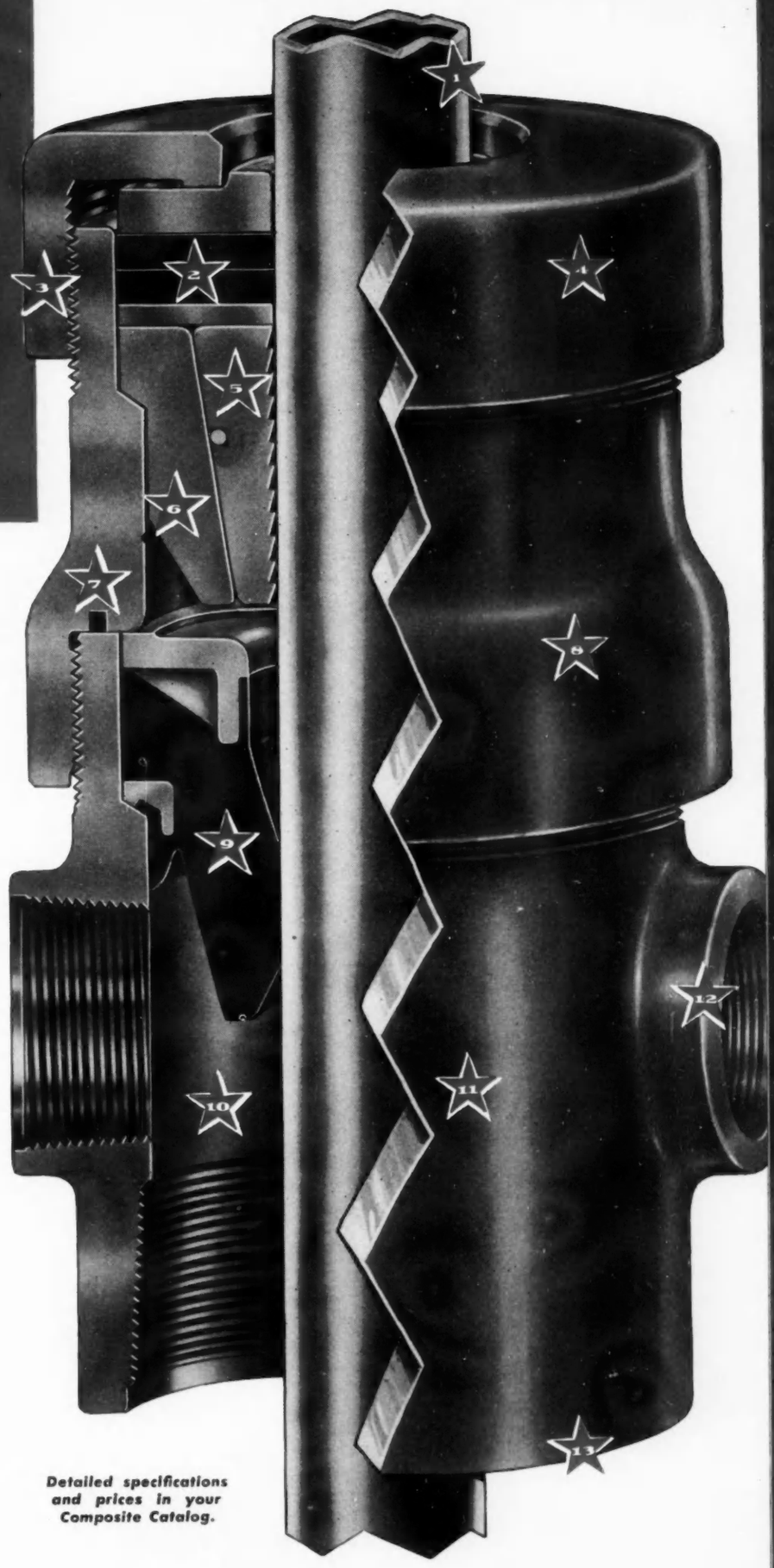

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TABLE 2
Pumping Well Data

Bbls. Fluid	Bbls. Oil	Bbls. Water	Bottom Hole Pressure	Productivity Factor
Well C—Depth 2231 Ft.				
0	....	....	71	....
358	5	353	45	13.8
598	12	586	27.5	13.75

producing at a given rate for a sufficient length of time the bottom-hole pressure will decrease from the static value to some value corresponding to the rate of production. If the well is shut in, the pressure or fluid level in the well will rise, at first rapidly and then more gradually, finally approaching the static value very slowly. Inasmuch as this increase in fluid level is the result of fluid coming into the well bore it would appear that this might give a method of arriving at the capacity of a well to produce. If **P** is the height of fluid in the well bore, **t** is the time in hours, and **a** the net area of the well bore in square inches, we can write[5] that

$$Q = \frac{24}{5.61}\ \frac{a}{144}\ \frac{dh}{dt} = .030\ \frac{dh}{dt} \quad \ldots\ldots\ldots\ldots (2)$$

$$P = \frac{S\ h}{2.31} \quad \ldots\ldots\ldots (3)$$

$$Q = \frac{.03 \times 2.31}{S}\ \frac{a\ dP}{dt} \quad \ldots\ldots\ldots\ldots (4)$$

and from (1)

$$Q = c\,(P_m - P) \quad \ldots\ldots\ldots\ldots (1)$$

By solving these equations for **c** we find that

$$c = \frac{.16\ a}{S\ t}\ \log_{10}\frac{P_m - P_o}{P_m - P} \quad \ldots\ldots\ldots\ldots (5)$$

Where P_m is the static reservoir pressure as mentioned before, P_o is the pressure when the well is closed in or when time is started. **P** is the pressure when the time interval is ended, **a** is the net area of the well bore in square inches, **S** is the specific gravity of the fluid coming into the well bore and T the time interval in hours between the pressure readings P_o and P.

If **c** is a constant then succeeding readings of P and T can be taken and the value of P_m can be calculated from simultaneous equations similar to 5. There are, however, two other methods which can be applied more easily. The following formula can be applied to such calculations[5]:

$$P_m = \frac{P_1^2 - P_o P_2}{2P_1 - (P_o + P_2)} \quad \ldots\ldots\ldots\ldots (6)$$

Where P_1, P_2, and P_o are values of pressure measured at equal time intervals apart. This formula is quite easy to use and under certain conditions will work quite well. It can also be used in connection with the next method to be given to give a first guess as to P_m. The principle disadvantage in its use are that values may not be known at equal time intervals, or that variations in values are a result of experimental error may throw the values off considerably.

The second method appears to have several distinct advantages, the main one being that apparent experimental errors can easily be smoothed out. Any changes in character of the build-up curve can also be detected. Figure 3 shows a plot of the pressure data shown in Table 3 against time. From these curves it can be seen that the pressure rise is rapid when the well is first shut in. Any slight error in the plotting of these curves would considerably affect the value for P_m which would be found from equation 6.

If, instead of plotting pressure against time, the difference between the static pressure and pressure

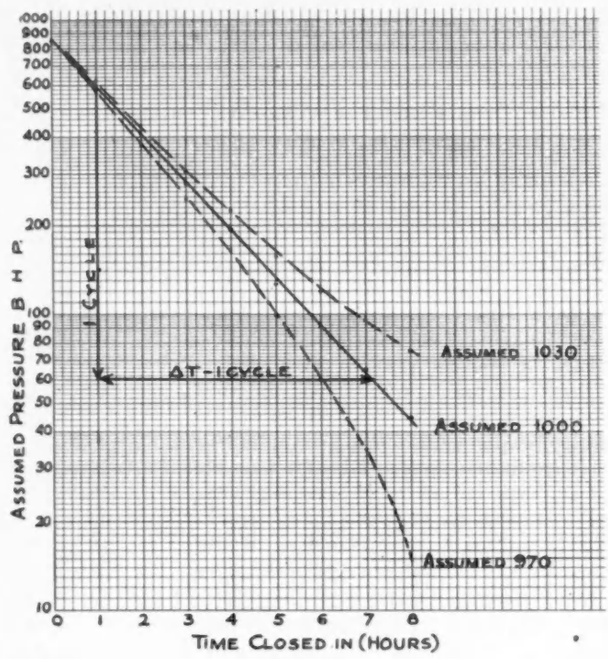

FIGURE 4
Build-up curve plot of difference between static pressure and pressure data at various periods for Well F in Table 3.

data at any time be plotted against time on semi-log paper a straight line will result. Since the static pressure is usually desired, one trial-and-error method of solution would be to assume a value of P_m and plot the difference on semi-log paper. If the resulting

TABLE 3
Build Up Data

Reading No.	Hours Closed In	Gage Pressure	Pressure Corrected to Face of Sand
Well D—Depth Approximately 3600 Ft.			
1	0	245	290
2	80	915	960
3	160	985	1030
4	240	1020	1065
5	320	1040	1085
....	...	....	1100
Well E—Depth Approximately 3600 Ft.			
1	0	250	295
2	20	920	965
3	40	950	995
4	60	970	1015
5	80	985	1030
....	..	....	1060
Well F—Depth Approximately 4000 Ft.			
1	0	....	148
2	1	....	376
3	2	....	592
4	3	....	725
5	4	....	805
6	5	....	872
7	6	....	910
8	7	....	935
9	8	....	955
....	..	....	1000

[5] Use of Data on Build-up of Bottom-Hole Pressure or Rise of Fluid Level in Pumping Wells in Determining Production Capacity of Well and Reservoir Pressure by Morris.

Does there not seem to be a prophetic quality in the selection, long years ago, of the eagle as the emblem of the Republic — not the static eagle of heraldry but the majestic, courageous and keen-visioned eagle of American mountain tops?

Is there not written in this selection a predestination to aerial supremacy?

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curve comes out a straight line the assumed value will be the correct one. If it does not come out a straight line then a new value must be assumed. Figure 4 shows such a plot for the data of well F listed in Table 3. Too large a value, 1030, results in the curve bending upwards. Too small a value, 970, results in a curve which bends downward, and the correct value, 1000, gives a straight line.

In addition to giving a method of determining the reservoir pressure the resulting straight line gives a very simple and convenient method of calculation the well characteristic constant or the productivity index factor, c. If the time interval used in equation 5 is taken as one log cycle (range of multiple of 10 in pressure) then equation 5 reduces to

$$C = \frac{.16\ a}{S\ T} \qquad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (7)$$

where T is time of 1 log cycle as shown on Figure 4.

In this equation **a** has been referred to as the net area of the well bore. In the case of a pumping well

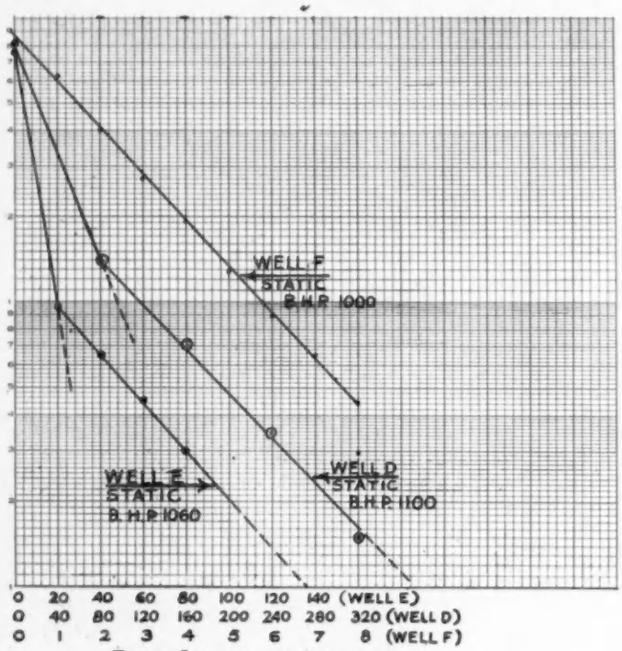

FIGURE 5

Build-up curve of well data, showing contradictory results.

this area will be equal to the internal area of the casing less the outside area of the tubing.

If in the case of the well F shown in Figures 4 and 5 the following data will be assumed

Casing 7" — 24 lb., Inside area	31.5 in.²
2½" tubing, Outside area	6.5
Net Area	.25 in.²
Specific gravity of fluid	= 0.85
T from figure 4 for one cycle	= 6.1 hours

Then $c = \frac{.16 \times 25}{.85 \times 6.1} = .78$

Wells E and D shown on Figure 5 and in Table 3 represent cases where the method gives some apparently contradictory results. The first two points in each case show a much steeper curve than the later points. If the time for the first points on curve D is used as a basis for determining the time for one cycle, a value of c will be obtained which will be several times larger than that indicated by the later points. On this well the buildup is very slow. It is possible, for example, that the first part of the curve represents the buildup resulting from the more permeable portions of the formation and the later part of the curve shows the influence of the tighter sections. Wells E and D were flowing wells so that the effect of the free gas in the formation is not known. It would appear that more information is necessary before a complete interpretation of such curves can be made. It would also appear that the analysis of such curves have the possibility of giving much more data than is normally obtainable from a bottom-hole pressure test.

The above method offers an easy method of determining both the static reservoir pressure and the productivity-index factor for the well without actually measuring any production. The restrictions on such a method are similar to those on the validity of equation 1. The derivation of equation 7 is based on equation 1 and on the assumption that the well bore is filled with liquid as the bottom-hole pressure builds up. For a well producing only liquid this correlation would be expected to apply reasonably close. With the introduction of fluid measuring devices this method appears to have possibilities of wide application. The data are easy to obtain and no gaging of production is required. As the requirements for getting good data and the limitations of the method are determined the method will undoubtedly come into wider use. It should be as accurate as many so-called potential methods. When applied to fluid level data, formula (7) can be expressed as

$$C = .07\frac{a}{T_h} \qquad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (8)$$

Where T is time for one cycle change in fluid level or a change in fluid level in feet by a ratio of 10. The method when applied on the basis of fluid level does not require any knowledge of the specific gravity of the fluid which comes into the well bore.

The fluid level measuring method is most simply applied to wells making only liquid. In the case of wells making gas and liquid some further information is necessary as to casing and tubing pressure, etc. The method of using bottom-hole pressures is equally applicable to either type of well.

Summary

When bottom-hole pressure data are available from pumping or flowing tests the behavior of the well will be found to follow the relation

$$Q = c\ (P_m - P)$$

where Q is the production in barrels per day, c (the productivity index factor) is a constant for any well, P_m is the static reservoir pressure and P is the pressure at the formation when the well is producing at a rate **Q**. If **c** and P_m are known **Q** can be found for any value of **P** or **P** can be found for any value of **Q**. If several values of **Q** and **P** are known, **c** can be calculated.

The method of calculating the well characteristic or productivity index factor from buildup data offers a simple and easy method and does not require any production data to make the required analysis. The basis of arriving at this method are such as to make this method as accurate as the one given above. Further information on the limitations of each of these methods are necessary but at the present time they offer the only basis for the prediction of well performance.

The next article of this series will discuss horsepower requirements of prime movers.

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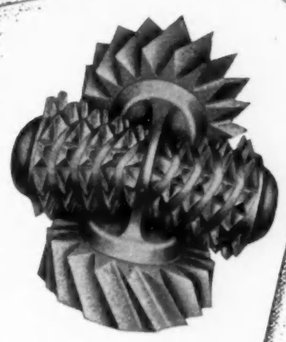

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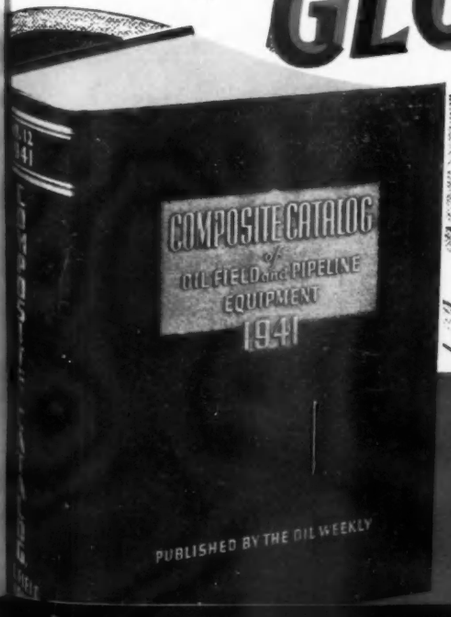

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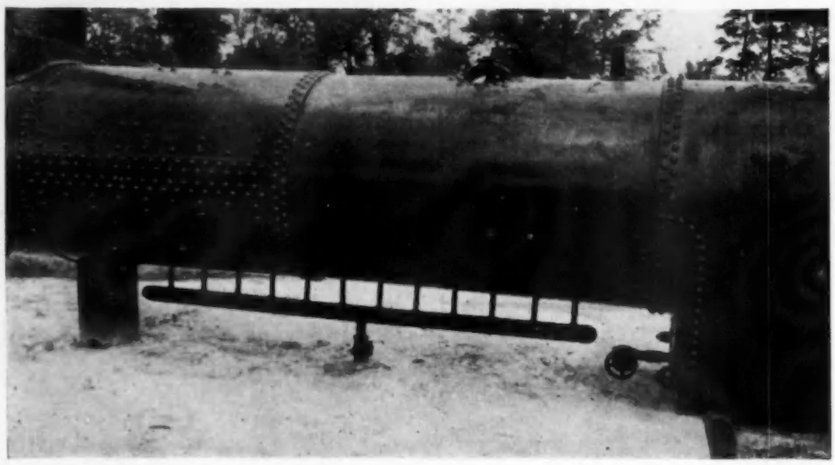
Practical Operating Hints for

1. TREATING

Heating Becomes More Uniform When Crude Oil Enters Boiler Through Several Openings



Oil enters this boiler to be heated in a salt-water removal process through a series of small openings, resulting in a more uniform temperature increase.

BY TAPPING the barrel of an oil-field boiler used for heating crude before treatment for removal of salt water, and inserting a row of small feeders to the tapped openings, a company found the temperature of the oil would be raised more uniformly, and that the emulsion broke up more readily than when the crude entered through one flanged fitting and set up strong currents within the barrel.

The entire inlet manifold is unitized by welding the taps to a horizontal header, ample flow is assured to each inlet, and uniform distribution afforded by the choke effect of the vertical nipples.

The welded make-up of the distribution header insures tight junctions and adequate strength to withstand any stresses which may be set up in expansion differences in length of header or boiler plate during the heating operation. Ends of the pipe forming the header are shaped and welded in bullplug form to minimize expansion stress localization.

Location of the manifold under the boiler affords maximum protection from damage through lease operations or careless handling of equipment, and also insures free flow of fluids, avoiding gas locking of any possible high spot such as frequently slows down flow in side entrance installations.

This painted standard alongside guy-lines can be seen readily at night.

2. SAFETY

Standards Point Out Derrick Guy-Lines

UNLESS protected in some manner, derrick guy-lines near lease roads may be driven into at night, and possible damage to the derrick sustained.

One operator in the Rodessa field protects the guys near the roadway by paired uprights, carrying two cross pieces, all of them painted in contrasting diagonal stripes to make them more readily visible under illumination of car headlights. The vertical sections are stapled to the upper guy line, to afford greater support to the light material forming the warning.

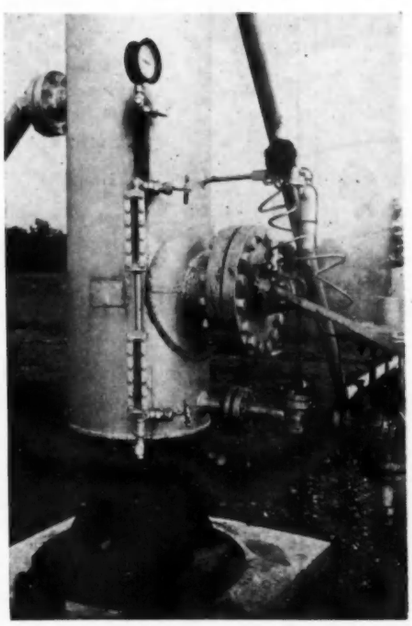
Although the painted grille is attached to the guy lines to insure stability, 1x4-inch material used is light enough so that if accidentally contacted by a vehicle, the wood will splinter or pull away from the guys without tending to throw a strain on the derrick leg to which the guys are made fast.

Located so as to insure vehicular headroom under the guys, the warning also serves to prevent personal injury by making more conspicuous the paired guys in space between anchorage and derrick leg.

3. SAFETY

Separator Fitted With Boiler-Type Gauges

ON SEPARATOR set-ups handling fluids under high pressures, use of standard boiler-type gauge glasses affords a maximum of protection against blow-out, and also makes the fluid level visible under

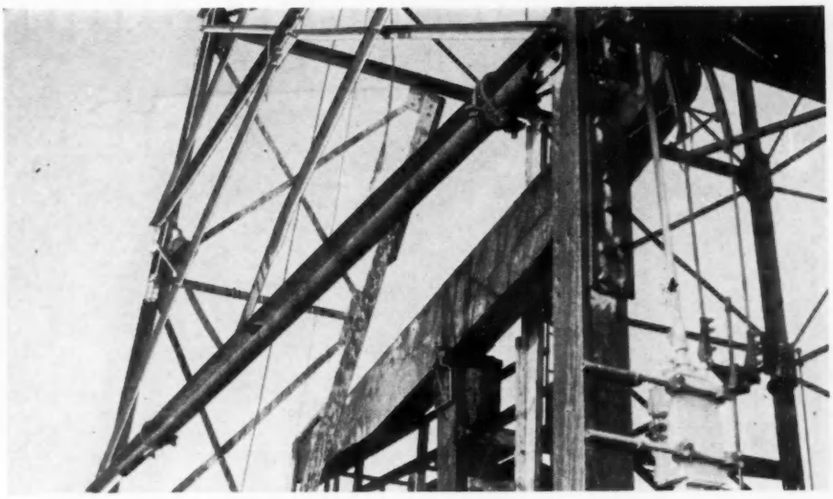


Boiler-type gauge glasses provide maximum protection against blow-outs.

conditions of light which might not suffice with round tubing.

By using two or more glasses and setting them at the critical points in the fluid zone of the separator, it is possible to check the level throughout the critical range, without expense and maintenance of keeping up glasses over the entire base of the unit.

Use of heavily protected boiler gauge glasses practically eliminates loss of production, dirty separator settings, and fire hazard involved where an exposed glass is used and where occasional damage by trespassing boys must be included in lease operation plans.



A section of pipe protects tubing and sand lines from sharp edges of this girt.

4. ROPE CARE

Pipe Dulls Sharp Edge Of Derrick Girt

MANY operators still retain a standard end for pumping wells, but unless a calf wheel or bull wheel is used for pulling the rods and tubing, it becomes necessary to use a portable pulling unit from a side of the derrick other than that which has the window in it. Unless the derrick floor is level with the ground, the unit must stand close to the floor in order to avoid as much as possible the wear of the lines against the lower girts.

One company using a portable pulling unit found a worth-while saving could be effected in prolonging the life of the tubing lines and sand lines by clamping a length of pipe to the lower girt below which the pulling unit was stationed. A joint of 3-inch line pipe or tubing was cut through with a cutting torch, on one side of the pipe only, and extending in a straight line down the entire length of the joint. This slit was made wide enough so that it could be slipped over and securely clamped to the vertical edge of the angle iron composing the first girt above the floor.

This eliminated the sharp edge against which the lines had been slapping and scraping, and at the same time gave additional strength to the girt which quite often is badly bent when tearing out or moving in heavy equipment.

THE practical operating hints for the drilling rig and production man, appearing in these features each week, are secured from oil fields everywhere and offer suggestions that will help to improve field efficiency and safety. The items give an excellent picture of the remarkable ingenuity being exercised by the operating divisions of the industry. Contributions to these features will be paid for at the rate of $5 for each illustrated item accepted. Address contributions to "The Editor, THE OIL WEEKLY, Houston."

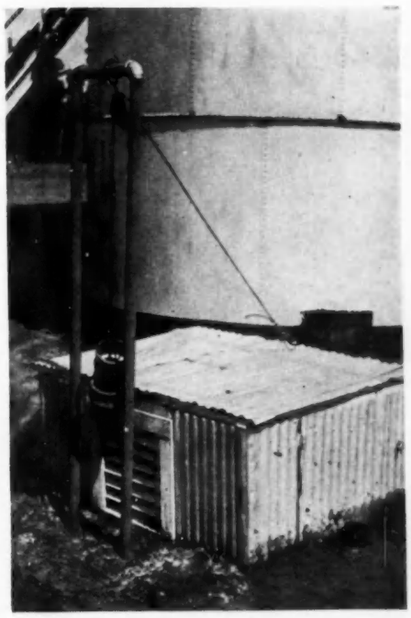
5. GADGETS

Trap Door Balanced By Counterweights

A SHORT mast supporting counterweights for holding open the trap door of a small pumphouse is used on one East Texas lease. A centrifugal pump for emptying the stock tanks is located in a small corrugated iron housing set on the ground inside the firewall. The structure has a small window for ventilation while the pump is operating, and a trap door which opens vertically when it is necessary to enter the building.

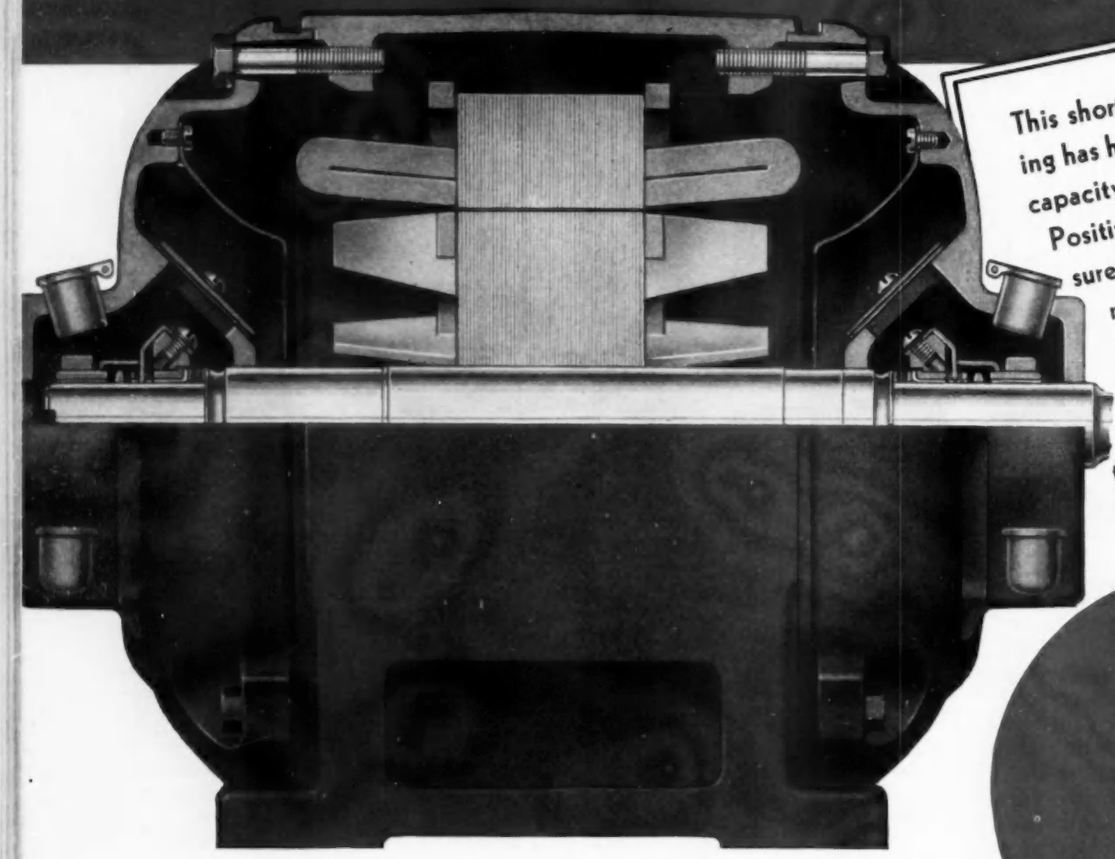
To eliminate propping the door open while working on the motor, the operator constructed a mast six feet high. Two uprights of 1-inch pipe driven into the ground sufficiently for a firm support form the frame, with two elbows and a 12-inch piece of pipe tying the vertical pieces together at the top.

With the mast set at the rear of the pump housing, a pulley is attached to the horizontal pipe. A wire line runs through the pulley and is fastened at one end to the handle on the door, while on the other end, hanging vertically, are suspended several counterweights. When the trap door is lifted, the weights hold it open without additional support.

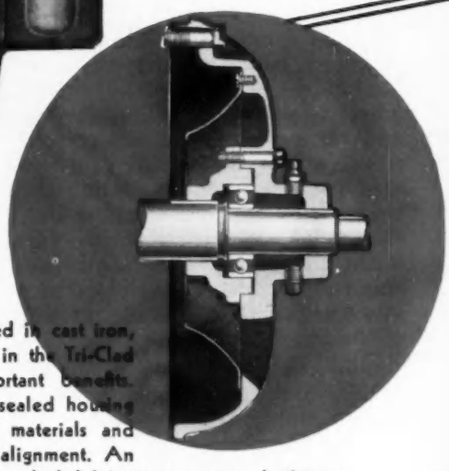


Trap door on this pump housing is held open by weights suspended from a mast.

We Cut
YOUR MAINTENANCE WORRIES



This shortened sleeve bearing has higher load-carrying capacity and longer life. Positive lubrication is assured by its corrosion-resisting oil ring and improved spiral grooving—the bearing runs full of oil regardless of the direction from which the load is imposed.



Built for protection first...
...to last!

Completely housed in cast iron, the ball bearings in the Tri-Clad motor offer important benefits. The single-joint, sealed housing excludes foreign materials and maintains proper alignment. An improved pressure-relief lubrication system facilitates getting fresh grease where it is needed and helps to expel worn-out grease.

TRI CLAD
INDUCTION MOTOR
GIVES EXTRA PROTECTION 3 WAYS

Extra Protection
against physical damage

The strong, one-piece cast-iron frame and end shields, with upper portion completely enclosed, protect vital motor parts from external blows, flying chips, settling dust, and dripping liquids.

When We Cut

THE ENDS OFF THE BEARINGS

In the Tri-Clad motor, G.E. uses a SHORTER sleeve bearing for LONGER life

Extra Protection

against operating wear and tear

For years, G-E motor designers have been experimenting with sleeve bearings of all kinds. They have found that a shorter sleeve bearing—one with new diameter-to-length proportions and a more effective type spiral grooving—is a fundamentally better bearing; that such a bearing can successfully withstand the stress imposed by short-center, hinged-base drives and similar applications.

In addition, the new sleeve-bearing housings on Tri-Clad motors are dust- and oil-tight. These and many other features are your assurance of a dependable, free-running motor.

In Tri-Clad ball-bearing motors, the bearing is completely enclosed in cast iron. There are only three major parts in the bearing assembly—the end shield, the inner cap, and the bearing itself. Close-fitting running seals keep out ball bearings' worst enemies—dust, dirt, and water.

You'll find that Tri-Clad motors are usually quiet and smooth-running; you'll find that they stay on the line when the going is tough. They'll give your production *extra protection* during *extra* years of service. Specify them on your next motor order. General Electric, Schenectady, N. Y.

Extra Protection

against electrical breakdown

Stator windings of Formex wire give extra protection against moisture, oil, abrasion, and heat shock. A tough, synthetic resin bonds the coils, and a coat of Glyptal 1201 Red on the end windings completes an insulation which maintains its strength during years of strenuous service.

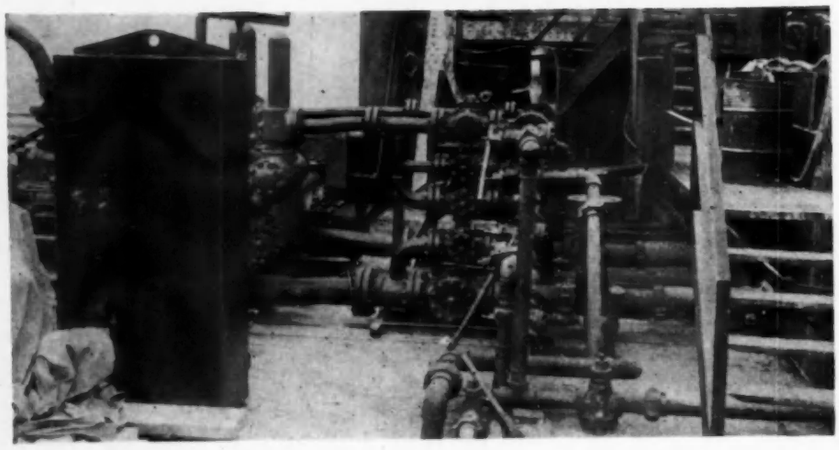
GENERAL ELECTRIC

750-29-8058

Practical Operating Hints for

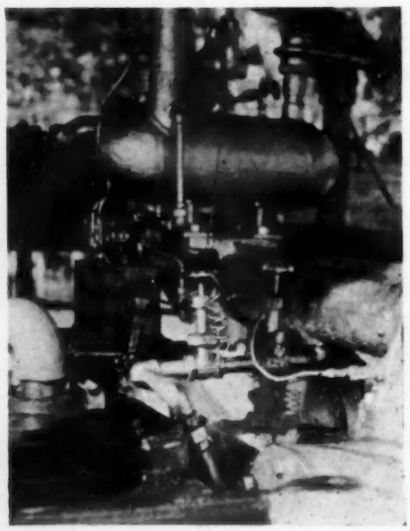
1. RIGGING UP

Pump Manifold Welded and Flanged Into A Single Skid-Mounted Unit



Pump manifold is made into a single skid-mounted unit to facilitate rigging up.

FOR rigs set up with each unit in the same relative position each time, Continental Oil Company builds a pump manifold which is welded and flanged into one skid-mounted unit. On the mud-pit side, each pump suction is fitted with a short nipple with a companion flange that matches the remainder of the suction line connected to the pits. The valve that controls the suction is located in the manifold unit with the discharge, by-pass and compounding lines and fittings stacked above. Since many different conditions arise on drilling wells, the suction, discharge and by-passing can be changed quickly with plug valves flanged into the manifold unit.



This valve rigged up for operation by driller helps brake drawworks engine.

2. SAFETY

Driller Controls Valve to Brake Draw Works

A VALVE to help brake the drawworks by admitting air into the cylinder of the drawworks engine is used by one drilling contractor in East Texas. While it controls the drain line from the steam chest, the valve is constructed to allow the driller to regulate it from his position at the brake.

Threads are removed from an ordinary valve to permit its opening by a vertical pull without turning the valve wheel. A wire is stretched from the wheel to a snatch block hung on a girder directly overhead, and thence to a control lever close to the driller. A pull on the lever raises the valve from its seat, admitting air into the steam chest to aid compression and help brake the drawworks by utilizing the pull of its engines. A pair of springs attached to counterpull against the lift of the valve closes it when tension from the motivating lever is released.

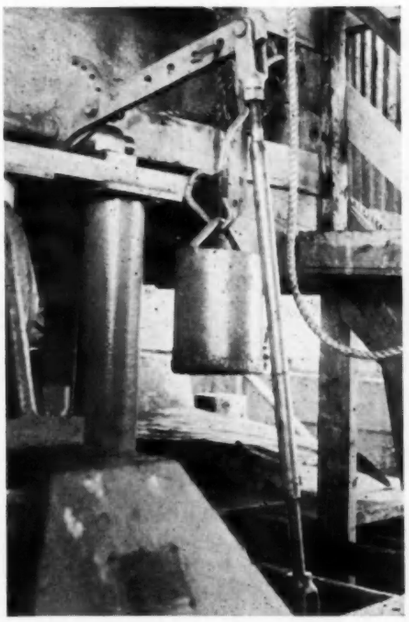
Air admitted into the cylinders in this manner is compressed, retarding the speed of the engine movement, and then expelled from the cylinders by the steam exhaust, with additional air admitted on each stroke. The process relieves the direct pull on the brake when running or pulling pipe, adding time to its length of service and usefulness and at the same time keeping the driller in direct control of the amount of braking used.

3. SAFETY

Draw Works Control Rod Anchored

FOLLOWING considerable repair and overhauling work on a unitized rotary drawworks, one contractor found that the drawworks control rod had a tendency to slip out of neutral occasionally. While it was not in itself serious during normal operations, it might lead to a serious accident at some critical moment when the driller was forced to leave the controls for a short period.

To remedy the situation, a mechanic welded a bottom to a 9-inch length of 7-inch casing, and after providing the bucket with a bail



A weight on the drawworks control rod keeps it from slipping out of neutral.

of sucker-rod material, hung it in one of the adjusting holes in a control lever link between the drawworks and engine. Pieces of iron were placed in the bucket counterweight until just the proper weight and control over the lever had been attained without making it too heavy to operate in either direction.

4. RIGGING UP

Steam Exhaust Muffler Water Used for Mud

DRILLING in the congested city-lot areas of the Wilmington field in California, one operator finds it advantageous, because of limited space, to mount his steam exhaust muffler in a horizontal position on pipe skids, and place it on the top of the mud ditch that runs along the side of the rig floor.

The muffler consists of a closed 10-foot length of 24-inch casing, having two 6-inch exhaust risers extending from the top side. Exhaust steam from the drawworks enters one end, and that from the mud pumps enters the other.

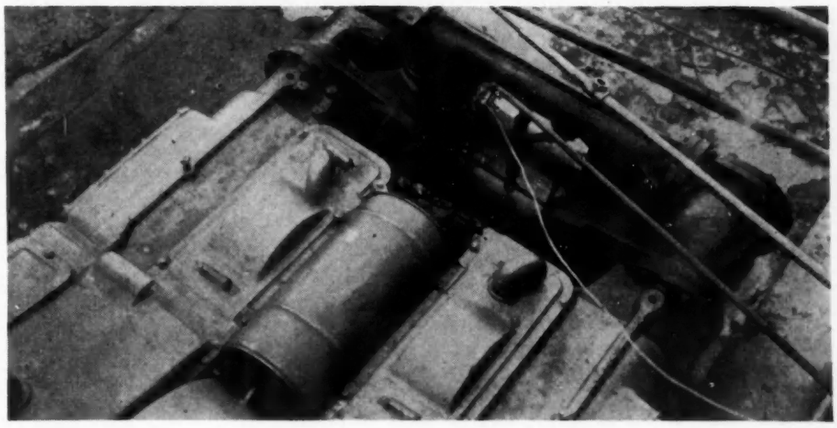
To still further adapt operations economically to the tight locations, the condensate water from the muffler is drained off to be saved for use in the mud-mixing tank, instead of allowing it to run out to the edge of the lot, which would result in muddy working conditions and perhaps run afoul of city ordinances.

Because the muffler is mounted close to the center of operations, less exhaust piping is necessary.

This steam exhaust muffler is mounted atop the mud ditch to conserve space.

5. ENGINE CARE

Convenient Sheet-Metal Housing Protects Reverse Linkage on Steam Engine



A light-weight sheet-metal housing protects reverse linkage on this steam engine.

FOR the protection of reverse linkage on a steam engine used in Kern County, California, John Mabee placed a light-weight sheet-metal housing over this part of the equipment.

The shield or housing is made as a half-cylinder, with a protruding flange on each side with holes for attaching to the base of the engine with cap screws which ordinarily hold down the cast cover for each side of the engine.

6. GOOD HOUSEKEEPING

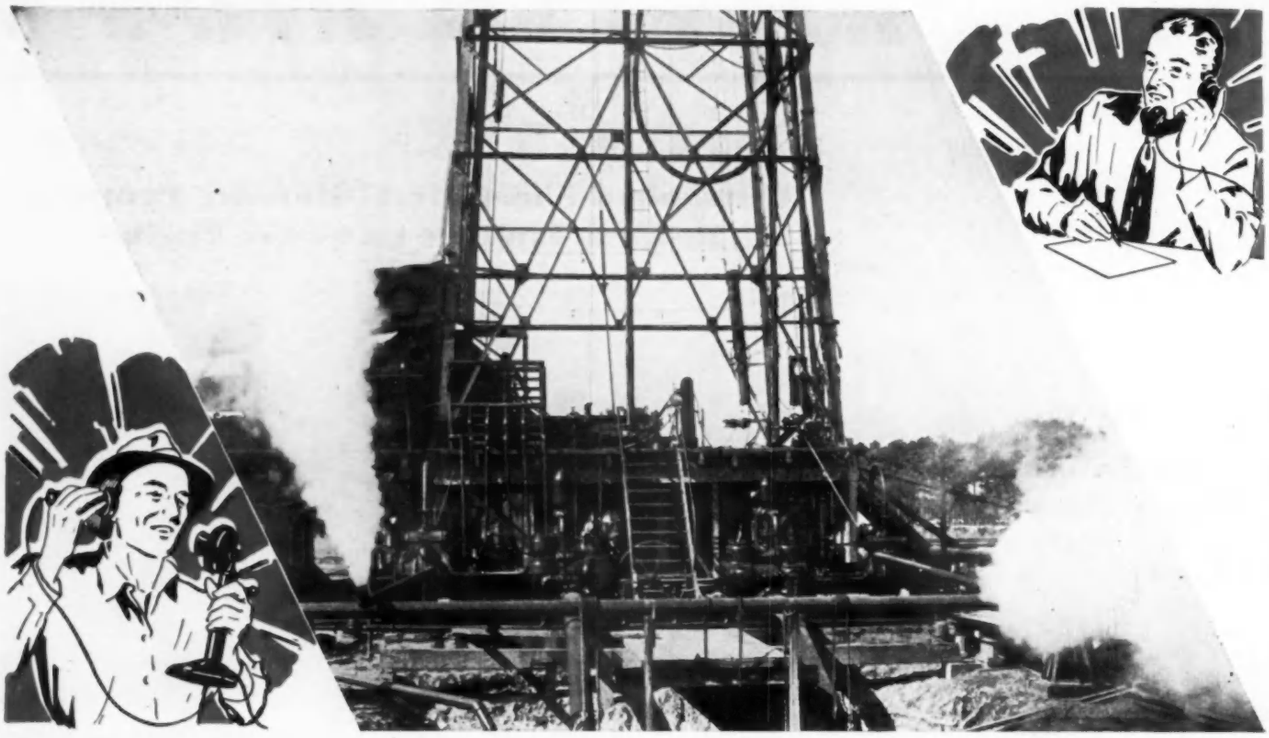
Hot Water Available For Washdown Work

CLEANING and washing down the kelly, drill pipe, rotary table and other equipment on the derrick floor, may be accomplished quicker and easier by employing a convenient steam line.

A ½-inch pipe nipple may be welded at a 45- to 50-degree angle into a short 1¼-inch nipple, which in turn is screwed into the downstream side of the 1¼-inch water line valve near the edge of the derrick floor. Live steam from a ½-inch connection on the steam line coming directly from the boilers, is led through a length of ½-inch pipe and connected with a union to the welded nipple. Hot water is almost instantly formed when steam is injected into the water hose at this point. Temperature variation is made possible merely by adjusting the volume of water or steam as it enters the hose.

This system is of particular value when the equipment is being cleaned up for moving or placing in storage on the racks. Washing down equipment following drilling-in with oil is likewise speeded up considerably.

A ½-inch steam line enters this water line to provide hot wash-down water.



Delay takes a holiday...

There is no "time out" in oil field and pipe line operations. They are continuous; seven days a week, twenty-four hours a day. Speed is a prime essential. Delay in securing equipment can be costly and delay in securing information on equipment can be costly too.

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RELIABLE • MORE COMPLETE
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the COMPOSITE CATALOG

OF OIL FIELD AND PIPE LINE EQUIPMENT

HIGHLIGHTS IN THE WEEK'S NEWS

Legislation

Deadlock on Texas Proration Law Broken; Passage Expected

The deadlock on oil bills between the two houses of the Texas legislature was finally broken last week when the Senate consented to a free conference report on the general proration law initiated in the House.

When the House passed the bill, it provided for a permanent law. The Senate amended the measure to limit its effectiveness to two years. This was the only point upon which the two houses disagreed.

The House, when the bill was returned with this amendment, refused to concur, and asked for a free-conference committee. For several days, the Senate declined action, then finally agreed to talk the question over.

The general proration law automatically expires on September 1, 1941, and for this reason the new law must be enacted immediately. Because the expiration date is less than 90 days away, the bill must get a two thirds vote in both branches, as well as the signature of the governor. Other wise, it will not become effective until 90 days after the legislature adjourns, and during a period between September 1 and the date the new law is effective, Texas would be without a proration statute.

The consensus was that unless some new problem arose, the bill would be passed, and passed with the needed majority.

Meanwhile, no progress had been made on the market demand bill. Efforts to bring up the bill were defeated by a small minority, which sometimes resorted to a filibuster to prevent a vote. Whether the bill was gaining or losing ground was difficult to determine. So far, it has not been amended, and was in the exact form in which it passed the House.

Opposition to the measure had died down and only one company appeared determined to continue the fight. This company, however, employs one of the most astute lobbyists in Texas politics, and his single handed fight seems likely to succeed in prevent passage.

Whether and when the legislature would go home remained doubtful as the week drew to a close. The members were tired and wanted to leave, but some important work on appropriation bills was yet to be done, and the governor is a candidate for the United States Senate. What he might do to advance his political fortunes at the expense of the Legislature worried many members. While they hated to stay, they feared to go home.

Courts

Plaintiffs Win Action Against Texas Proration of McElroy

Judgment for plaintiffs was rendered last week in district court at Austin in the suit against the Texas Railroad Commission's proration order in the McElroy field. Because more than $50,000 a day was involved, lawyers were preparing the judgment carefully. It had not been entered late in the week.

The case involved the method of allocation in the McElroy, McClintic and Church-Fields pools, which have been combined into the McElroy field. It also involved the question of a market for the oil which would be produced on the McElroy ranch.

While the court granted an injunction to the plaintiffs, who contended that the commission should grant 85 percent of the oil to the ranch property, and that the ranch could produce 50,000 barrels a day without waste, it said it would enter an order containing findings of fact and law and it was the preparation of this order which caused the delav.

This is probably the most important proration suit that has been in the courts since the Rowan and Nichols case was decided, and will undoubtedly have a great effect on future proration orders issued, not only for the McElroy field, but for other fields in Texas.

Gas Royalty Owners Held Liable for Tax in Texas

The Texas Supreme Court has held that royalty owners are responsible for a portion of the occupational tax levied on producers of natural gas. This is true, regardless of the fact that the lease contract may provide that the royalty owner is to receive a specific price as his share, rather than an eighth of the income from the production.

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Washington

[*Continued from page 16*]

a goodly portion of the winter supply during the summer months.

Bituminous coal comprises more than 30 percent of the total rail traffic of the country, it was said.

Gasoline Rationing Necessary

Meanwhile, Petroleum Coordinator Ickes, becoming increasingly definite in his statements, told the American Automobile Association, on receipt of a pledge of cooperation by the motorists of the nation in the effort to reduce gasoline consumption, that the Atlantic seaboard will have to make sacrifices. The forecast of a "probable" shortage now has been changed for a definite assertion that rationing will be necessary although no indications have been given when the restrictions will be imposed.

More definite information regarding the current situation and the possibilities may be divulged June 16 by the Bureau of Mines in its April production report, although generally the monthly statements confine themselves to the period under review rather than the future.

On June 9, the bureau submitted a report to the coordinator, declaring that the average octane rating of the three grades of gasoline sold at service stations last winter increased appreciably over that of the previous year and that both the anti-knock and volatility qualities of all three grades have shown a steady improvement for the past five years, an interesting statement but not particularly illuminative of the future.

Illinois Promises Cooperation

More to the point was the disclosure by the coordinator that he was more satisfied with the Illinois situation, made following a conference with a legislative committee at which the state representatives volunteered their cooperation with the government in stopping waste.

Ickes told the committee that any legislation undertaken should, from both the national and state points of view, be directed toward stopping waste and not to the stopping of production. He assured the group that he did not intend to

SHAKE-OUTS

From The News

American Automobile Association proposes campaign for slower speed on highways and other voluntary measures to conserve motor fuel to avoid any need for gasolineless Sundays. AAA believes a saving up to 20 percent in fuel is possible. Oil Coordinator Harold L. Ickes wrote approval of the campaign to AAA.

Spending for United States defense: (mid-May 1941) $44,000,000,000 recommended and appropriated; $13,500,000,000 contracted for; $5,000,000,000 already spent; thus far, $1,200 for every wage earner in America.

Despite cries of steel shortage for the past six months, the trade publication "Steel" says: "the fact is that practically no shutdowns have occurred among consumers because of lack of steel." The magazine continues: "This gives confidence that supply can be made to do, without intolerable hardships, for an indefinite period ahead." In the oil country reports indicate that companies already have begun to comply with OPM's request to conserve the supply of steel pipe by drilling only necessary wells.

News from the stock markets show that oil shares "lack bouyancy" throughout the lists with observers waiting further developments from Washington before speculation as to the effect on oil securities of closer regulation of the industry by administration forces.

Members of the Palestine (Texas) Flying Club are "up in the air" because drilling operations are encroaching upon the city's 265-acre airport which is under lease to a Fort Worth concern. It is claimed that three locations have been spotted in the airport for early drilling and such operations will make it necessary to abandoned the field for flying purposes.

With the Ways and Means Committee in executive session on the new tax bill, word from Washington is that it is certain the yield from last year's tax law, being computed this month, will exceed original estimates and likewise will substantially top the tax figure for the biggest year of the World War period.

The bill levying a 3 percent tax on oil produced in Illinois, commencing July 1, is expected to yield more than $6,800,000 in revenue during the next biennium.

Five-gallon tin and alloy rectangular gasoline cans and paper lubricating oil cans are used by the Germans in transporting and fueling their motor-driven equipment. The United States Army plans to use same system for fueling trucks . . . A million one hundred and forty barrels of steel storage will be built at the United States' Newfoundland base to handle gasoline, lubricating oil and fuel oil. Tanks are 10,000-barrel capacity each.

Jerry Sadler, Texas Railroad Commissioner, when asked by newspaper men if he knew Deputy Coordinator Ralph K. Davies, vice president of Standard Oil Company of California, replied that he did not and that he was "wary" of "Standard." However, he added that he understood Davies was "tops."

"It is our patriotic duty to cooperate as long as there is anyone left to cooperate with," H. B. Fell, IPAA executive vice president, declared in addressing 300 oil men at the annual banquet of the Oil and Gas Association of Michigan. Fell asserted that "the spirit of the president's letter setting up a petroleum coordinator is fine," and added that he did not "view it as tantamount to federal oil control." Fell pleaded for full unity and cooperation and the "burning of old bridges."

Coordinator Ickes surprised newspaper men at his press conference last week by voluntarily handing the oil industry one of his rare compliments when he stated: "I have never seen a greater or more commendable desire to cooperate with the government than is being shown by the oil industry. I don't think there is anything they won't do if they are asked."

Railroads report unusually heavy shipments of light petroleum products from southwestern refining centers following reductions of from 18 to 20 percent in light oil rates early in the week. Simultaneously reductions were posted on gasoline and kerosene prices in Standard of Indiana territory.

offer them a draft of legislation or attempt to dictate in any way what form the legislation should take but, he said afterwards, "I did inform the committee that conservation legislation and legislation designed to restrict production to market demand were not one and the same thing."

Discussing the meeting, the coordinator pointed out that Illinois occupies a highly strategic position in the petroleum defense requirements.

"Because it is located in the heart of the country, close to great central markets, there is no problem of transportation to get the production into the hands of the ultimate consumer," he said. "The oil production of Illinois can be used to great advantage at this time when there will be a heavy demand generally on transportation facilities.

"Unfortunately, the large flush production of Illinois is past, for the time being at least. That production resulted in a great amount of waste. I hope that the people of Illinois will see the necessity for passing legislation to prevent waste. It is important when every resource should be used to the maximum efficiency, that there be a restriction in the drilling of unnecessary wells, thereby freeing materials needed in other industries.

"However, it is contemplated that there will be no restriction of the search for new oil fields, as continued search is necessary to develop a reserve of such size as will continue the present rate of production. Naturally, any betterment of the present rate of production depends absolutely upon finding more oil.

"I assured the members of the Illinois legislative committee that the federal government did not advocate any restriction of exploration and pointed out that the government encourages exploration on its own lands.

"I hope the committee is successful in carrying through its expressed desire to cooperate with the federal government by proceeding to a solution of Illinois' first problem, the enactment of legislation to prevent the waste of this vitally necessary natural resource."

Ickes Warns Texas Commissioners

In conferences with Commissioners Sadler and Culberson of the Texas Railroad Commission, Coordinator Ickes made no attempt to conceal his pertur-

bation over the situation which is developing in the Lone Star State, and reportedly stated that if the Texas proration law fell federal control legislation would be moved immediately.

The fight on the market-demand provision which is being pressed for inclusion in the law is endangering the passage of legislation continuing the act, which expires this year. In addition, some of the Texas producers are renewing their court attacks against the statute, and have secured two more injunctions, and, still further, resentment against the failure of Illinois and California to join the conservation states has served neither to improve nor clarify the situation.

Ickes was told, it is said, that there is an increasing feeling in Texas oil circles that the state should not be required to restrict production for the benefit of other states; that Texas oil producers aren't making any money because of proration, while Illinois and California producers can get the cream of the market, and that there is some argument that proration should be abandoned and the question made one for national consideration on the basis of "all or none."

The coordinator also is attempting to collate information regarding supplies, storage and reserves of oil in the vicinity of the starting points of the two projected pipelines which will have their origin near the Texas-Louisiana border, with a view to determining the possibilities for keeping the lines supplied with oil after the emergency passes.

This is a matter of considerable importance, it was indicated, because of the possibilities that the government may have to throw many millions of dollars in the construction of pipe lines. In other words, there is some doubt in official minds that the oil companies will actually spend the hundreds of millions of dollars which they have said they are willing to invest in the new facilities.

Ickes Discusses Situation

Many phases of the current situation were discussed at a press conference attended by both Ickes and Davies.

On the question of giving more tankers to Great Britain, the coordinator declared "I will cooperate in every effort to give all-out aid to Britain but must take into consideration the needs of American industry."

He added that while he knows nothing about priorities on steel for pipe lines—a matter which would go to the Office of Production Management rather than to him—the Maritime Commission has furnished a list of every tanker in American ports and he has sent out to every owner of tankers for information on each ship and its capacity that is owned by Americans but operated under foreign registry, and is studying the possibilities of diverting to the Gulf-Atlantic service tankers now in other intercoastal trade.

Ickes was asked whether he considered tankers or pipe lines most necessary, and responded with the assertion that both are essential, and that shipyards are to be built immediately for tanker construction.

Answering an inquiry as to what would happen if unwarranted price increases were made in gasoline or oil, he drew a distinction between the work of his organization and that of other agencies by pointing out that prices were a matter for the OPACS and expressed confidence that Leon Henderson, head of that agency, would "crack down" on any effort to increase prices unwarrantably.

Steps are being taken to set up the staff of the coordinator's office, he disclosed, adding that committees will be formed in the oil industry to act in advisory capacities.

Illinois Plans Quick Move on Oil Law After Ickes Confab

Spurred by a recommendation of Secretary of the Interior Harold L. Ickes that Illinois enact a waste-prevention oil control bill, members of a state senate subcommittee June 11 discarded two proposed regulatory measures and called for immediate drafting of a new bill for passage before June 30.

Increasing defense needs coupled with continued absence of a regulatory bill in the state were listed as key factors prompting the committee to take "decisive action," according to Senator Charles F. Carpentier, chairman of senate oil and gas conservation committee.

Chairman Carpentier called the special meeting of the group a few hours after members returned from Washington where they conferred with Ickes in an effort to determine Illinois' status in the nation's oil picture.

"We are determined to cooperate in every way with the government," Carpentier said, "in order to prepare a simple measure to prevent waste."

Action of the subcommittee means complete abandonment of an administration-sponsored bill creating a three-man oil commission, which had been presented May 7 with the approval of Governor Dwight H. Green; and a measure submitted May 22 by opposition forces vesting regulatory power in the department of mines and minerals.

Before reading a transcript of Secretary Ickes' full statement to members of the committee, Senator Carpentier said, "members of the Illinois legislature should know that the interior secretary made it clear that he will deal in the future in his position as national petroleum coordinator either with individual operators or a recognized state agency.

"Secretary Ickes encouraged us to ask for the easiest and fairest kind of a conservation bill that will serve our purposes now, and which can be elaborated upon later," the chairman declared.

Only two agencies of the state government will be considered as administrative sources for the new bill. They are the state department of mines and minerals, under Director Robert M. Medill; and the state geological survey division of the department of registration and education, headed by Dr. M. M. Leighton.

Dr. Alfred H. Bell, head of the survey oil and gas section, and Dr. W. H. Voskuil, petroleum economist, both of whom attended the committee session, indicated Doctor Leighton would disapprove placing control of a regulatory measure in the survey division.

Former Governor John Stelle, leader of opposition to the original administration bill on the ground it was a "distinct proration measure"; and Clarence T. Smith, administration spokesman and Illinois representative on the interstate oil compact commission, expressed joint agreement with Secretary Ickes' views after re-stating arguments in favor of their conflicting measures.

California Price Ultimatum Delayed Until July 1

Leon Henderson, head of the Office of Price Administration and Civilian Supply, was flooded with protests from California oil operators following requests of his investigators for a reduction in Pacific Coast gasoline and crude prices to levels obtaining prior to May 23, when a general advance averaging 6 cents on crude and one half cent on gasoline was instituted in this area.

While a hearing held at San Francisco last week was closed to the press, representatives of several of the more than 30 companies invited to sit in were outspoken in their criticism of the handling of the situation. They charged that no consideration was given to their presentation of data on costs, and that the request of the investigators for the reduction in prices could in no way be justified.

Dana Hogan, president of the San Joaquin Valley Oil Producers Association, invited as an independent producer, wired California's Senator Sheridan Downey immediately following the meeting, and lodged a vigorous protest directed at the handling of the meeting.

While originally requested to reduce prices effective June 9, Henderson later extended the time limit to July 1, and indicated that in the interval a thorough study would be given to the price situation on the West Coast.

Stripper Operators Protest

The California Stripper Well Association has called a mass meeting for 7:30 p. m. June 16, at the Shell recreation hall, Long Beach, to protest the ordered price reduction. The association is preparing statistical data to present in Washington before the scheduled reduction takes effect.

"That the smaller operators will have to carry a substantial share of the burden of the national defense oil program in California is evident," declared A. D. Mitchell, association president. "At the hearings held by the Office of Price Administration and Civilian Supply in San Francisco, our association presented data confirming their position that any adequate national defense program must take cognizance of the 10,000 wells in this state which produce an average of less than 25 barrels of oil per day. These wells, with their tremendous national defense reserves of oil, must be permitted to receive the cost of producing the oil or a shut-down may be inevitable.

"Dr. A. K. Galbraith and Quinn Shaughnessey, of the OPACS, admitted in San Francisco that the stripper wells must receive consideration.

"It is our belief that we can convince the OPACS, with the support of the operators of smaller wells in California, that the selling price of oil from these essential wells must not be reduced in these perilous times. Many of these wells do not now return the cost of production and further decreases in income may cause loss of vital national defense oil."

Richard Fenton, spokesman for stripper well operators at the OPACS hearings in San Francisco, will be the principal speaker at the June 16 meeting. A vice president of the National Stripper Well Association and a vice chairman of the California Conservation Committee, Fenton will report to the operators on the San Francisco meeting and outline the need for factual data he will present before Leon Henderson late this month.

Pipe Lines

Kansas Governor Reports on New Pipe-Line Construction

Governor Payne Ratner said Kansas pipe-line capacity would be increased from 230,000 to 280,000 barrels daily by construction programs of four purchasing companies.

Socony-Vacuum Oil Company will construct 23½ miles of 10-inch line in Rice County, increasing capacity from 42,000 to 70,000 barrels per day. The company also is replacing old pumping equipment on its line from Chase to Valley Center. Failure of pumps has caused a reduction in capacity.

Kaw Pipe Line Company will lay 37 miles of 10-inch from Chase to Susank, Barton and Rice counties, looping its main line, and will increase capacity from 35,000 to 60,000 barrels. The company also will provide a new outlet for Ray pool, Phillips County, with a 40-mile 6-inch line from Burnett pool through Rooks County. No increased runs can be expected from this connecting line with present pumping equipment, the governor stated.

Phillips Petroleum Company has completed 5½ miles of 6-inch line near McPherson, increasing capacity from 20,000 to 26,000 barrels a day.

Skelly Oil Company will lay 33 miles of 6-inch from Bloomer pool, Barton County, to the Hall-Gurney pool, Russell County, as an extension of the company's present system.

Ask Michigan Permit on Big Gas Line Project

Both Panhandle Eastern Pipe Line Company and Consumers Power Company filed formal applications with the Michigan Public Service Commission June 10 to carry out a $6,000,000 natural gas marketing expansion program.

Consumers has negotiated a contract with Panhandle for a minimum of 5.7 billion feet annually to be supplied from Kansas and Texas fields for the extension of the former's gas services in Michigan. If approved Consumers will change over from manufactured gas in 66 cities including such big industrial areas as Flint, Pontiac, Jackson and Kalamazoo.

G. H. Burman, Panhandle engineer, testified that the company is prepared to build approximately 275 miles of transmission line ranging from 20-inch to 12¾-inch diameter. This line will extend from the Michigan-Ohio line north to a point near Saginaw and west to Kalamazoo. At the state line it will be tied into Michigan Gas Transmission Company's main, which now connects Panhandle's line at the Indiana-Illinois border and extends on north to Detroit.

Burman said that compressors now being installed on the main 1200-mile line from Texas, plus looping either underway or contemplated will give the line a capacity of 350 million feet per day. The main line is 70 percent looped now, he said. He estimated the cost of the construction in Michigan at $4,633,000 to be completed within six months after permit approval and securing of right of way easements.

Panhandle Eastern now supplies Detroit, which purchased about 21 billion feet last year. The new Consumer Power Company market would, it was estimated, increase the Panhandle delivery to at least 30 billion a year and around 50 billion in 10 years if markets expand at the rate now anticipated.

James A. Brown, director and in charge of Consumer's gas division, said the contract with Panhandle provides that 30 percent of the new market will be supplied from Michigan fields and that this ratio may be increased if more Michigan reserves are uncovered. Brown said present proven reserves in Michigan under contract to Consumers amount to approximately 47 billion feet or about a 4- to 5-year supply on the basis of present withdrawals. He indicated that the company's entire Michigan system may be on natural gas from Texas within 10 years unless new reserves are found and developed shortly.

Both Consumers and Panhandle representatives urged immediate review and decision of the co-applications because of defense conditions. The expansion of natural gas markets was labeled as a defense aid move in that present facilities are not adequate to meet with rising fuel demands in such cities as Flint and Pontiac.

Any appreciable delay in a decision on the pipe line permit, Burman said, might provoke a serious problem in the obtaining of the 275 miles of transmission line.

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Complete Michigan Line

Leonard Pipe Line Company completed a 4-mile 4-inch oil line from the new Lincoln (Osceola County) field to a railroad loading yard on the Pere Marquette at Oliver. This is the only pipe line-rail outlet for the field. Both Simrall Corporation and Pure Transportation Company are gathering in the field.

Take Up Old Pipe to Provide Ray Pool Outlet

Kaw Pipe Line Company is taking up 50 miles of 6-inch line in the Cushing-Okmulgee-Seminole district, Oklahoma, to provide an outlet for Ray pool, Phillips County, northwestern Kansas. The line will extend from the company's terminus at Burnett pool, northern Ellis County, 40 miles northwest to Ray pool, southwest corner of Phillips County. Old pipe is being utilized as new could not be secured before the first of the year.

Ray pool has nine producers with potential of 21,701 barrels daily. April runs totaled 10,277 barrels. Principal operator is Cities Service Oil Company.

Award Contracts for Maine-Montreal Pipe Line

Standard Oil Company of New Jersey has awarded to Williams Brothers Corporation and Oklahoma Construction Company contracts for construction of a 250-mile, 12-inch pipe line between Portland, Maine, and Montreal, Canada. Completion of the 55,000-barrel-per-day line is expected late this year. Estimated cost of the project is about $8,000,000. When delivering its normal load of 35,000 barrels of crude daily to Montreal, the pipe line will release the equivalent of 3.4 tankers of 34,000 dead weight tons.

Sinclair Building Gasoline Line Ft. Worth to Dallas

Sinclair Refining Company has awarded contract to Monarch Construction Company for laying a 31-mile 3½-inch gasoline carrier from its Fort Worth refinery to a bulk station on the north edge of Dallas. This line has been under consideration for a year. It will have a capacity of 2000 barrels daily, and is scheduled to be completed by August 1. The pipe was recently delivered to the Fort Worth refinery site, where equipment will be available to apply insulation to the 33-foot joints beginning July 1. Magnolia Petroleum Company also operates a gasoline line between Fort Worth and Dallas, and is due to make initial deliveries late this month on its Fort Worth-Oklahoma City 4½-inch refined products line that was completed last November.

JAMES H. MAGUIRE has retired as works manager of Haynes Stellite Company, Kokomo, Indiana, and will continue with the company in a consulting capacity. F. T. McCurdy, plant superintendent, has been named general superintendent in charge of production and operating departments; J. R. Brown, former production manager, is assistant superintendent, and H. C. Fretz, general foundry foreman, has been named assistant to the superintendent.

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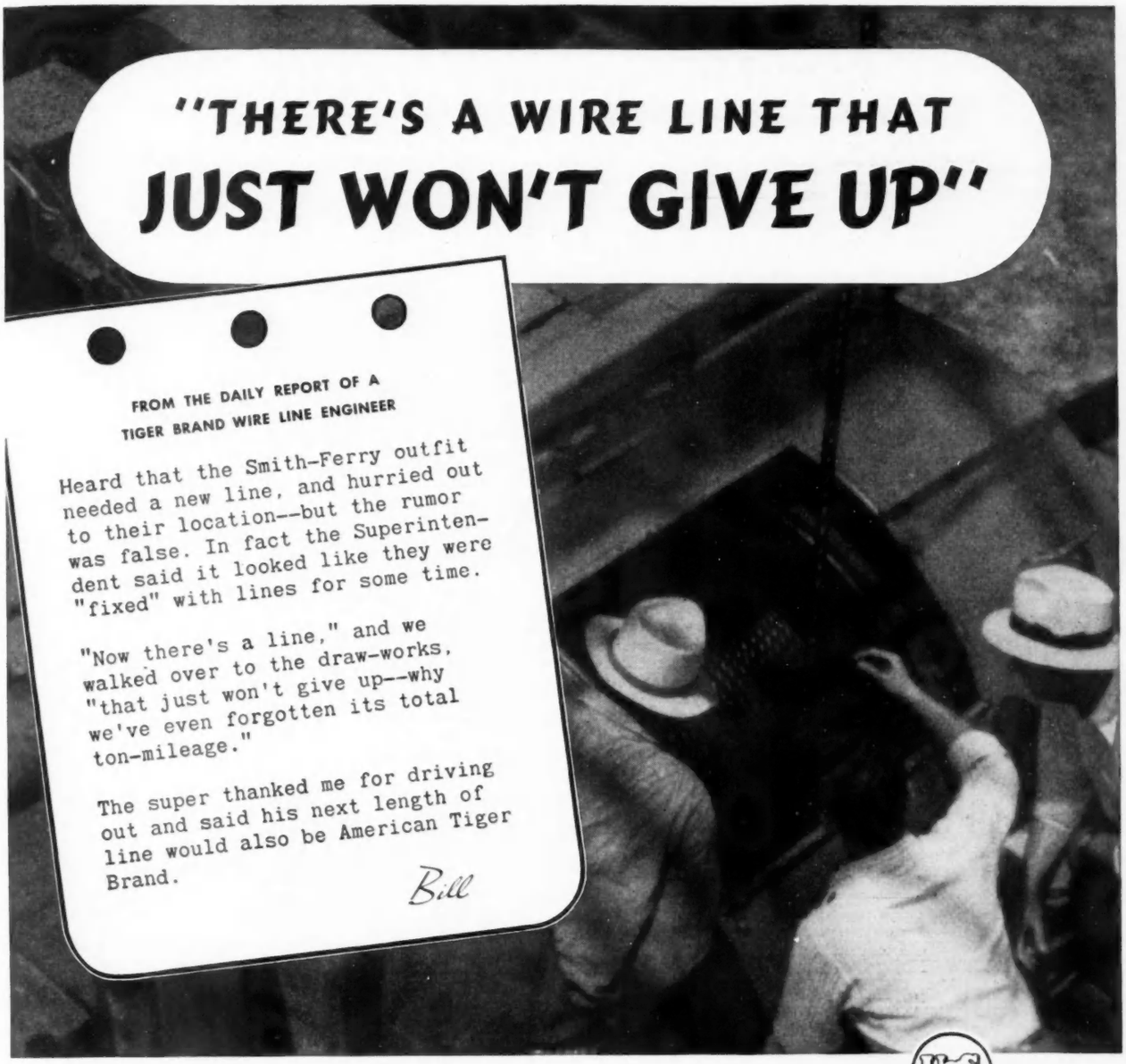

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UNITED STATES STEEL

Gasoline and Fuel Oils Move East; Refinery Runs at Peak

Latest statistics, covering the week ended June 7, showed a continuation of above-normal shipments of gasoline from the Gulf Coast to the Atlantic seaboard, as the industry exerted special efforts to avert a scarcity of that product in the East. The figures showed also a stepping up of the similar movement of both heating oil and industrial grade fuel oil, the shipments of both the light and heavy fuels having been closely comparable with those in the corresponding week last year, after having lagged heretofore, because of abnormal use of tanker tonnage for moving gasoline.

Meanwhile, refinery operations were pushed higher, to a new peak for all time, as plant facilities also were more completely utilized in efforts to keep abreast of current unprecedented demand for petroleum products.

Crude-oil production likewise was exceptionally high, the daily average having risen 30,000 barrels and to within 100,000 barrels of the all time record of August, 1939.

Gasoline Moves Briskly

For the United States as a whole, there was a withdrawal of 1,300,000 barrels of gasoline from storage, a change that was normal for this time of year. However, the reduction varied from normal in that it occurred primarily on the Texas Gulf Coast, while there was a contra-seasonal accumulation of stocks on the East Coast, in reflection of the special stepping up of shipments from the Gulf to the Atlantic seaboard. Stocks on the Texas Coast were reduced 1,400,000 barrels within the week, after having been drawn upon to the extent of 400,000 barrels the previous week. In contrast, the Coastal Texas storage was lowered only 182,000 barrels in the corresponding two weeks last year, and in the one week ended June 8 last year there was a small increase. Aside from the changes last week on the Texas Gulf Coast and the East Coast, there were no significant fluctuations in the gasoline inventories anywhere else in the country. On the Louisiana Gulf Coast there was a small withdrawal from storage, as in the previous week.

Having totaled 92,522,000 barrels on June 7, gasoline stocks in the United States were 7,000,000 barrels (7 percent) smaller than at the corresponding time last year. However, the present inventory of aviation gasoline is 2,000,000 barrels larger than that of a year ago, and stocks of ordinary gasoline are 9,000,000 barrels smaller.

If the East has to do without sufficient heating oil next winter, the threatened scarcity of shipping facilities will be the cause. The industry continues to produce that product in quantities commensurate with prospective consumer demand, and stocks are being accumulated accordingly. The total inventory in the United States was expanded in the week of June 7 from 33,524,000 to 34,305,000 barrels.

Moreover, the heating oil was moved in steady volume from the Gulf Coast to the Middle Atlantic and New England states, where it is most heavily consumed. Stocks on the East Coast were increased 500,000 barrels, after having decreased slightly the week before, and the half million barrel addition compared with a 400,000-barrel increment in the corresponding week last year. However, for the past two weeks, the net increase was only 426,000 barrels, as compared with an increase of 818,000 barrels in the corresponding two weeks a year ago.

On the Texas Gulf Coast, stocks of gas oil and distillate were reduced about 200,000 barrels in the week of June 7, whereas they had increased rather sharply the week before. Last year, there were increases in each of the two weeks corresponding with the past two weeks. The net result of the half month just passed, therefore, was a slightly smaller increase in Coastal Texas stocks than that in the comparable period last year. The Louisiana Gulf Coast in the past two weeks has had a net reduction of 14,000 barrels in stocks of the light fuel oils, in contrast with a 184,000-barrel addition in the like period last year.

Heavy Fuel Added to Storage

The situation with regard to heavy fuel oil showed some improvement in the week ended June 7. Stocks in the United States were increased 700,000 barrels, and of that addition, over 500,000 barrels occurred on the East Coast, where scarcity is threatened. In the Middle West, too, there was a small increase in the inventory, gains having been recorded for both the Indiana-Illinois-Kentucky and the Oklahoma-Kansas-Missouri refining districts. Stocks remained practically unchanged, meanwhile, in most other districts east of California, including Inland Texas, the Texas Gulf Coast, the Louisiana Gulf Coast, North Louisiana-Arkansas, and the Rocky Mountain region. In California, there was a further withdrawal of about 230,000 barrels of heavy fuel oil from storage.

Refineries of the country were operated in the week of June 7 at 90.7 percent of rated capacity, compared with 86.2 percent the week before, as crude runs to stills were stepped up in practically all refining districts. Plants on the East Coast increased operations to 93.3 percent of capacity from 89.3 percent the previous week, and increases in runs for other districts included those from 84.5 to 92.3 percent of capacity in the Appalachian region, from 93.4 to 96.7 percent in Illinois-Indiana-Kentucky, from 86.7 to 96 percent in Oklahoma-Kansas-Missouri, from 71.9 to 79 percent in Inland Texas, from 91.8 to

Trends of Operations and Changes in Stocks

Figures are from American Petroleum Institute weekly reports, except those on crude stocks, which are from Bureau of Mines weekly reports

WEEK ENDED	Crude Oil Production (Barrels Daily)	Crude Runs to Stills (Barrels Daily)	Crude Oil Stocks (Barrels)	Gasoline Stocks (Barrels)	FUEL OIL STOCKS	
					Gas Oil & Dist. Fuels	Residual Fuel Oil
1938:						
November 12	3,243,250	3,180,000	273,394,000	[6]67,551,000	34,175,000	120,491,000
December 10	3,245,100	3,150,000	[2]269,509,000	68,687,000	32,068,000	118,711,000
1939:						
April 22	3,526,700	3,280,000	277,156,000	[2]87,769,000	21,085,000	105,035,000
April 29	3,568,200	3,405,000	278,440,000	86,794,000	[7]25,844,000	[7]108,409,000
May 6	3,580,900	3,275,000	[3]278,607,000	86,216,000	26,167,000	108,597,000
August 5	[1]3,909,400	3,445,000	268,982,000	76,431,000	35,601,000	114,512,000
August 26	[5]1,690,800	3,475,000	246,982,000	73,475,000	37,722,000	116,237,000
October 7	3,435,850	3,505,000	231,564,000	[6]71,152,000	38,549,000	114,397,000
October 21	3,771,550	[2]3,650,000	[2]229,127,000	72,122,000	39,358,000	115,060,000
1940:						
January 27	3,611,600	3,470,000	237,339,000	87,914,000	27,407,000	103,015,000
February 24	3,732,100	3,490,000	240,836,000	96,719,000	25,390,000	103,419,000
March 30	3,841,250	3,585,000	250,561,000	101,370,000	23,778,000	105,081,000
April 20	3,858,550	3,535,000	254,881,000	[1]102,817,000	24,779,000	103,323,000
April 27	3,845,250	3,555,000	256,670,000	102,452,000	24,997,000	102,552,000
May 25	3,835,650	3,580,000	259,330,000	100,297,000	28,356,000	104,015,000
June 22	3,846,450	[2]3,690,000	260,891,000	97,276,000	32,751,000	104,683,000
June 29	3,639,550	3,625,000	262,059,000	95,142,000	33,590,000	104,486,000
July 27	3,690,400	3,555,000	262,579,000	90,173,000	38,981,000	105,924,000
August 31	3,501,350	3,575,000	265,865,000	85,393,000	44,766,000	108,774,000
September 28	3,799,950	3,600,000	263,609,000	82,273,000	47,986,000	108,450,000
October 26	3,640,300	3,565,000	262,746,000	80,891,000	[1]48,893,000	108,475,000
November 9	3,584,200	3,510,000	261,631,000	[6]79,847,000	48,408,000	107,687,000
November 30	3,335,050	3,510,000	262,679,000	80,284,000	46,212,000	106,618,000
December 28	3,385,500	3,585,000	261,552,000	83,274,000	42,266,000	102,620,000
1941:						
January 25	3,599,100	3,625,000	260,093,000	88,762,000	39,039,000	100,297,000
February 22	3,629,650	3,590,000	261,783,000	95,812,000	34,381,000	98,631,000
March 1	3,632,250	3,585,000	263,176,000	96,917,000	33,725,000	97,510,000
March 29	3,746,550	3,625,000	266,187,000	[2]99,727,000	29,949,000	96,152,000
April 26	3,726,850	3,675,000	266,149,000	96,647,000	29,543,000	94,732,000
May 3	3,507,100	3,735,000	265,728,000	96,328,000	30,309,000	94,414,000
May 10	3,756,100	3,821,000	263,994,000	95,703,000	31,548,000	94,407,000
May 17	3,784,450	3,805,000	262,645,000	94,867,000	31,882,000	93,987,000
May 24	3,772,850	3,867,000	261,576,000	94,811,000	33,102,000	93,774,000
May 31, 1941	3,786,100	3,699,000	262,356,000	93,845,000	33,524,000	92,757,000
June 7, 1941	3,816,700	[1]3,880,000	.....	92,522,000	34,305,000	93,384,000
June 7, 1940	3,816,950	[8]3,608,000	[4]261,662,000	99,401,000	29,293,000	103,376,000
Change in past year	—0.0%	+7.5%	+0.3%	—6.9%	+17.1%	—9.7%

[1] All time peak [2] Peak for year [3] Lowest since April, 1922 [4] Stocks, June 1, 1940.
[5] Lowest since October, 1922, due to shut down of six mid-continent states [6] Lowest for year
[7] Prior to April 29, 1939, data did not include stocks at terminals, in transit, etc., except in California
[8] May, 1940, daily average

95.1 percent on the Texas Gulf Coast, from 71.9 to 78.8 percent in California, and from 75 to 83.8 percent in the Rocky Mountain region. Runs were lowered from 92.5 to 90.6 percent in Coastal Louisiana and from 92.3 to 75 percent in North Louisiana and Arkansas.

Oil Prices More Settled as Increases Are Discouraged

Some further upward revision of product prices occurred during the past week, despite pressure exerted by the government against rising prices in all lines and in the oil industry in particular.

The Office of Price Administration and Civilian Supply last week induced a major marketer of the Middle West to at least temporarily delay, pending discussion with it, announced increases in price of Diesel oil, tractor fuel, and furnace oil. That action was regarded as evidence that the agency henceforth would vigilantly question any price increases not obviously based upon advances in costs.

OPACS also is closely watching crude oil prices, and currently is questioning the late-May advances of postings in California, after having obtained through a hearing at San Francisco data of producers on their costs of producing oil. Announcement of the agency's findings in connection with the study has been delayed until July 1.

Price Increases

Price increases which occurred last week were of readily understandable justification, having involved refiners' quotations on gasoline in the Mid-Continent and Middle West, where tightness of supplies prevails. Likewise, increases of quotations on both light and heavy fuel oils by suppliers on the Atlantic Coast did not seem without good foundation, in view of tanker tonnage scarcity and the threat of an impending shortage of those oils as well as gasoline on the East Coast.

Minimum prices of gasoline at Mid-Continent refineries were generally ⅛ cent a gallon higher late last week than a week previously, and some grades were up that amount also in the Middle West. On the Atlantic seaboard, however, gasoline prices were generally unchanged, apparently in reflection of the special efforts being made by the government to hold them down. Natural gasoline was everywhere unchanged.

Kerosene was quoted higher by some suppliers on the Atlantic coast, although prices remained steady in the primary markets of the Southwest. Range oil likewise was unchanged.

Heating oils continued to sell at previously established prices in the Mid-Continent and the Middle West, but quotations were advanced ¼ to ½ cent a gallon by some East Coast suppliers.

Fuel in Strong Demand

Industrial grade fuel oils continued generally in strong demand, and bottom prices were up 5 cents a barrel in the Middle West and 10 cents on the Atlantic coast. Bunker oil for ships similarly was up 10 cents in the East.

Lubricants continued strong, and further advances in prices were made in the Mid-Continent and in Western Pennsylvania. Bright stocks were up 1 cent a gallon at Oklahoma refineries but were unchanged in the Appalachian region. Neutral oils, in contrast, were unchanged in the Mid-Continent but up 1 to 3 cents a gallon in Western Pennsylvania.

An important development of the week was the inauguration of reduced railroad and gasoline pipe line tariffs from the Mid-Continent refining districts to Mid-Western and Northern consuming centers, following which shipments of all products were materially increased, some shipments having been delayed previously to take advantage of the 18 to 20 percent lower rates which went into effect June 11. It was estimated that the reductions amounted on the average to about ½ cent a gallon on gasoline, or about $40 a car. Rates of gasoline pipe lines in the same region were lowered so as to be kept the same as the rail rates.

Coincident with the reductions in shipping rates, Standard Oil Company (Indiana) reduced its prices of gasoline and kerosene in many points in its wide marketing territory. Inasmuch as that company is regarded as the leader in

Recent and Year Ago Changes in Stocks, by Refining Districts

FINISHED AND UNFINISHED GASOLINE

(Figures in thousands of barrels, from American Petroleum Institute.)

DISTRICT	1940 May 25	1940 June 1	1940 June 8	Change in 2 Weeks	1941 May 24	1941 May 31	1941 June 7	Change in 2 Weeks
East Coast	23,618	23,603	23,588	— 30	21,157	21,657	21,965	+ 808
Appalachian	3,960	3,862	3,812	— 148	2,957	3,082	3,047	+ 90
Ind., Ill., Ky	17,555	17,586	17,166	— 389	17,700	17,007	17,021	— 679
Okla., Kans., Mo.	7,887	8,050	7,848	— 39	8,179	7,874	7,837	— 342
Inland Texas	1,993	2,016	1,993	.....	2,342	2,281	2,233	— 109
Texas Gulf	15,052	14,847	14,870	— 182	14,630	14,119	12,823	—1,807
Louisiana Gulf	2,958	2,883	2,764	— 194	3,489	3,420	3,334	— 155
No. La. & Arkansas	569	556	559	— 10	473	573	528	+ 55
Rocky Mountain	1,638	1,639	1,578	— 60	1,692	1,663	1,673	— 19
California	18,012	18,251	18,238	+ 226	15,567	15,619	15,611	+ 44
Reported	93,242	93,293	92,416	— 826	88,186	87,295	86,072	—2,114
Estimated Unreported	7,055	7,060	7,055	.....	6,625	6,550	6,450	— 175
Total United States	100,297	100,353	99,471	— 826	94,811	93,845	92,522	—2,289

GAS OIL AND DISTILLATE

(Figures show, in thousands of barrels, inventories at refineries, bulk terminals, in transit, and in pipe lines. Source: American Petroleum Institute.)

DISTRICT	1940 May 25	1940 June 1	1940 June 8	Change in 2 Weeks	1941 May 24	1941 May 31	1941 June 7	Change in 2 Weeks
East Coast	7,218	7,615	8,036	+ 818	9,122	9,060	9,548	+ 426
Appalachian	365	342	335	— 30	379	356	353	— 26
Ind., Ill., Ky	2,790	3,069	3,219	+ 429	2,883	3,057	3,167	— 284
Okla., Kans., Mo.	1,078	1,134	1,141	+ 63	1,284	1,343	1,376	+ 92
Inland Texas	288	288	285	— 3	362	367	334	— 28
Texas Gulf	4,099	4,308	4,544	+ 445	6,043	6,601	6,436	+ 393
Louisiana Gulf	858	1,028	1,042	+ 184	1,233	1,247	1,219	— 14
No. La. & Arkansas	234	238	258	+ 24	321	305	306	— 15
Rocky Mountain	129	142	147	+ 18	130	136	136	+ 6
California	9,957	9,974	10,167	+ 210	10,685	10,372	10,725	+ 40
Reported	27,016	28,138	29,174	+2,158	32,442	32,844	33,600	+1,158
Estimated Unreported	1,340	1,395	1,435	+ 95	660	680	705	+ 45
Total United States	28,356	29,533	30,609	+2,253	33,102	33,524	34,305	+1,203

RESIDUAL FUEL OIL

(Figures show, in thousands of barrels, inventories at refineries, bulk terminals, in transit, and in pipe line. Source: American Petroleum Institute.)

DISTRICT	1940 May 25	1940 June 1	1940 June 8	Change in 2 Weeks	1941 May 24	1941 May 31	1941 June 7	Change in 2 Weeks
East Coast	8,115	8,646	8,953	+ 838	8,467	8,012	8,578	+ 111
Appalachian	661	644	633	— 28	470	432	420	— 50
Ind., Ill., Ky	3,322	3,335	3,275	— 47	3,479	3,470	3,522	+ 43
Okla., Kans., Mo.	1,912	1,962	2,010	+ 98	1,906	1,932	2,000	+ 94
Inland Texas	1,560	1,514	1,501	— 59	1,429	1,387	1,394	— 35
Texas Gulf	5,554	5,362	5,259	— 295	6,975	7,221	7,296	+ 321
Louisiana Gulf	988	834	1,043	+ 55	1,659	1,493	1,572	— 87
No. La & Arkansas	487	468	471	— 16	507	508	508	+ 1
Rocky Mountain	605	626	627	+ 22	502	504	510	+ 8
California	78,616	79,152	78,679	+ 63	66,820	66,263	66,034	— 786
Reported	101,820	102,553	102,451	+ 631	92,214	91,222	91,834	— 380
Estimated Unreported	2,195	2,215	2,215	+ 20	1,560	1,535	1,550	— 10
Total United States	104,015	104,768	104,666	+ 651	93,774	92,757	93,384	— 390

Wholesale Prices of Refined Products in Principal Markets

REFINED GASOLINE	Range Last Week (Cents a gal.)		Changes from Week Before	
Oklahoma Refineries:				
60 Octane and under	5⅛	5⅜	+⅛	...
63-66 Octane	5⅛	5¾	+⅛	...
72-74 Octane	5¾	6⅛	...	...
80-82 Octane, Ethyl	6⅜	7⅛	+⅛	...
Mid-Western Tank Car:				
60 Octane and under	5	5⅜	+⅛	...
63-66 Octane	5⅜	5¾	...	...
72-74 Octane	5¾	6⅛	...	...
80-82 Octane, Ethyl	7⅛	7⅛	+¼	+¼
New York Harbor:				
68-70 Octane	8	8	...	...
72-74 Octane	8	8½	...	...
Min. 80 Octane, '39 Research	8	9	...	...
Gulf Coast:				
60 Octane unleaded	5	5¼	...	...
65 Octane unleaded	5¼	5½	...	...
68 Octane unleaded	5⅝	6	...	...
70 Octane unleaded	5⅜	5¾	...	...
72-74 Octane leaded	5⅝	6	...	...
Min. 80 Octane, '39 Research	5¾	6¼	+⅛	...
NATURAL GASOLINE				
Grade 26-70:				
F.O.B. Group 3	3⅜	3⅜	...	...
F.O.B. Breckenr'ge, Tex. 3	3	...	...	
KEROSENE				
Oklahoma Refineries:				
41-43 water white	4⅜	4⅜	...	...
42-44 water white	4½	4⅞	...	...
Mid-Western Tank Car:				
41-43 water white	4⅜	4⅜	...	...
42-44 water white	4½	4⅞	...	...
New York Harbor	5¼	5⅝	...	+½
RANGE OIL				
At Oklahoma Refineries. 4		4⅜	...	...
In Mid-Western Market Group 3, basis	4	4	...	...
LIGHT FUEL OILS				
Oklahoma Refineries:				
No. 1 straw	3½	4¼	...	...
No. 3	3⅜	3⅝	...	...
Mid-Western Tank Car:				
No. 1 white	3¾	4⅛	...	...
No. 3	3⅛	3½	...	...
New York Harbor:				
No. 1	5¼	5¾	...	+½
No. 3	4⅞	5½	...	+¼

HEAVY FUELS	Range Last week (Per Bbl)		Changes from week Before	
Oklahoma Refineries:				
No. 6	$0.75	$0.80	...	...
Mid-Western Tank Car:				
No. 5	.85	.85	...	...
No. 6	.85	.85	+.05	...
New York Harbor:				
No. 5	1.65	1.65	+.10	...
No. 6	1.35	1.35	+.10	...
BUNKER C FUEL OIL (Per barrel, ships' bunkers)				
Gulf Coast	$ .85	$ .90	...	...
New York Harbor	1.35	1.35	+.10	...
DIESEL OIL (Per barrel, ships' bunkers)				
Gulf Coast	$1.45	$1.50	...	...
New York Harbor	2.00	2.00	...	...
Los Angeles Basin, 27 gravity	1.10	1.25	—.05	...
LUBRICATING OIL (Cents a gal.)				
Oklahoma Refineries:				
Bright Stock, 150-160 viscosity at 210°, 10-25 pour test	17½	18½	+1	+1
Neutral oil pale No. 3 color, 150 viscosity at 100°, 0-10 pour test	9½	11¼	...	...
Western Pennsylvania:				
Bright Stock, 145-155 viscosity at 210°, 25 pour test	21	23	...	...
Neutral Oil No. 3 color, 150 viscosity at 70°, 25 pour test	28	33	+1	+3

establishment of market prices in the Middle West, it was expected that other marketers likewise would pass the saving in shipping costs on to resellers and to consumers.

Further Illinois Increase Is Highlight in Production Rise

United States crude oil production increased moderately and was slightly in excess of indicated market demand in averaging 3,843,500 barrels daily in the week ended June 14. The output was 37,675 barrels greater than in the previous week and 13,500 above market demand as estimated for June by the United States Bureau of Mines.

Most importantly responsible for the increase of the week was a gain of nearly 22,000 barrels in California, but more interesting was the further expansion of 3000 barrels in Illinois production, as that state registered an increase for the second consecutive week, having turned out 348,500 barrels daily, which was 3000 more than estimated market demand.

Also noteworthy was a 17,000-barrel jump in Kansas production to 218,550 barrels daily. That state approximately conformed with indicated demand, but was not taking full advantage of the allowable set by its conservation agency.

Texas production was up about 3000 barrels to 1,407,600 daily, and exceeded demand about 35,000 barrels.

Oklahoma declined 6000 barrels to 415,550 daily, and although in conformity with the state allowable was 45,000 barrels under estimated demand.

CRUDE PRODUCTION SLIGHTLY ABOVE DEMAND

Estimates Compiled by The OIL WEEKLY

DISTRICT OR STATE	Bureau of Mines Estimate of Daily Demand (June)	State Allowable (Barrels Daily in June)	BARRELS DAILY FOR WEEK ENDED June 7	June 14
TEXAS—				
Texas Panhandle	.....	.....	74,500	74,500
North Texas	.....	.....	99,700	99,800
West Central Texas	.....	.....	30,200	30,300
West Texas	.....	.....	261,100	262,200
East Central Texas	.....	.....	80,500	79,800
East Texas Field	.....	.....	372,800	373,200
South Texas	.....	.....	210,400	211,300
Texas Gulf Coast	.....	.....	275,600	276,500
Total Texas	1,371,700	1,362,280*	1,404,800	1,407,600
CALIFORNIA—				
Long Beach	.....	.....	41,600	41,900
Midway-Sunset	.....	.....	50,900	54,500
Kettleman Hills	.....	.....	34,200	38,400
Wilmington	.....	.....	83,200	84,500
Others	.....	.....	419,200	431,500
Total California	615,300	575,000†	629,100	650,800
OKLAHOMA—				
Oklahoma City	.....	.....	95,950	81,650
Seminole Area	.....	.....	108,050	111,600
Others	.....	.....	217,575	222,300
Total Oklahoma	459,700	415,000	421,575	415,550
ILLINOIS—				
Salem	.....	.....	91,800	91,300
Louden	.....	.....	61,500	65,500
Centralia	.....	.....	10,900	11,100
Other New Pools	.....	.....	169,200	168,800
Old Pools	.....	.....	12,400	11,800
Total Illinois	345,300	.....	345,800	348,500

DISTRICT OR STATE	Bureau of Mines Estimate of Daily Demand (June)	State Allowable (Barrels Daily in June)	BARRELS DAILY FOR WEEK ENDED June 7	June 14
LOUISIANA—				
North Louisiana	.....	.....	73,500	74,100
South Louisiana	.....	.....	250,700	248,500
Total Louisiana	319,700	319,500	324,200	322,600
KANSAS	220,400	232,400	201,650	218,550
NEW MEXICO	113,000	113,000	113,200	113,100
EASTERN STATES—				
Pennsylvania Grade	48,000	.....	74,900	71,600
Others, Eastern	52,300	.....	18,700	18,600
Total Eastern States	100,300	.....	93,600	90,200
MOUNTAIN STATES—				
Wyoming	89,300	.....	84,500	86,700
Montana	19,700	.....	19,000	19,000
Colorado	5,000	.....	3,900	3,900
Total Mountain States	114,000	.....	107,400	109,600
MICHIGAN	38,000	37,500‡	38,200	37,800
INDIANA	22,000	.....	21,800	21,500
ARKANSAS	83,000	73,612	73,300	73,400
MISSISSIPPI	23,300	.....	27,000	29,800
NEBRASKA	4,300	.....	4,200	4,500
§Total 8 Prorated States	3,220,800	3,128,292	3,206,025	3,239,400
Total United States	3,830,000	.....	3,805,825	3,843,500

* Texas Railroad Commission's estimate of actual net daily production, allowing for usual under-production of 3½ percent under net allowable, which at the beginning of June is calculated at 1,411,732 barrels daily. However, allowable normally increases as new wells are completed. Under June order, most Texas fields were ordered shut down June 1, 7, 8, 14, 15, 21, 22, 28 and 30. Panhandle was ordered shut down June 7, 14, 21 and 28.

† Recommendation of Conservation Committee of California Oil Producers.

‡ Estimate of actual production under prescribed regulations, which do not fix a definite state total allowable.

§ Texas, California, Oklahoma, Louisiana, Kansas, New Mexico, Arkansas, Michigan.

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as well as

ECONOMY

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That progress is made through simplifying a product is shown by the illustrations of Gray products on this page. Figure 1 is an old Gray Stuffing Box Tubing Head of a few years back, one that rendered satisfactory service. Figure 2 shows a new Gray Tubing Head with Composite Manifold, a simplified, more flexible product that contains many new and improved features, including production from two or even three sands independently.

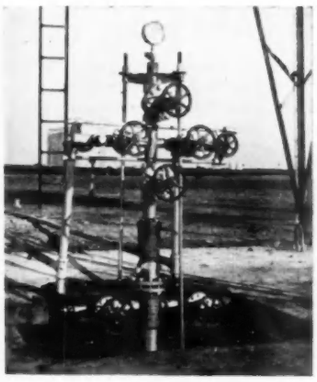

Figure 1

Thus progress is being made continually that provides for long lived control with economy through the skillful combination of good material, careful workmanship, **and engineering to achieve simplicity of design.** The flexibility, control and economy of Gray Systems of Well Control are proved by over 9500 successful completions on land and water, under working pressures as high as 6700 lbs./sq. in.

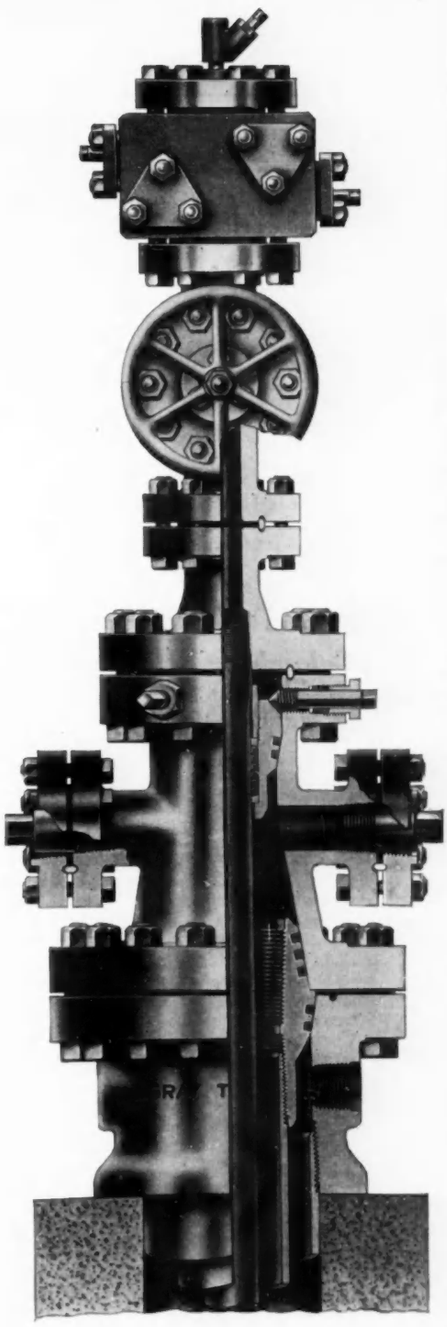

Figure 2

GRAY

TOOL COMPANY

HOUSTON

West Coast Distributor: WAGNER-MOREHOUSE, INC., Los Angeles

World-Wide Developments

Derrick Completed for Second Test Southwest San Joaquin

The Texas Company of Venezuela has completed derrick for a second well near Rincon Largo 1, about 10 miles southwest of the San Joaquin field in eastern Venezuela. The first well, at 9631 feet, was being tested further last week following successful perforation tests at the 8775-8790-foot level.

Mene Grande Oil Company, in eastern Venezuela, last week was drilling Santa Rosa M-1 at about 3600 feet. The company's Quiamare 1, wildcat in northeastern Venezuela, was coring around 6000 feet.

In Argentina, Ultramar S.A. P.A. was drilling its wildcats, Saladillo 2, Cerro Lumbreras 1 and Piedra Clavada 1, below 4346, 1010 and 3575 feet respectively.

Colombian Petroleum Stakes New Barco Wildcat

Colombian Petroleum Company has located Socuavo 2, wildcat on the Barco concession, four miles northwest of Socuavo 1, which was at 8901 feet last week. Road was being built to Socuavo 2.

Also on the Barco, Tres Bocas 2 and South Sardinata 1 were drilling at 1987 feet in shale, and 2322 feet in hard sand and shale, respectively.

Production of Colombian Petroleum Company last April was reported at 234,460 barrels.

Magdalena River Valley Petroleum Company was below 600 feet in Cimitarra 1, wildcat on Socony-Vacuum Oil Company's 33,000-hectare concession west of and fronting the Magdalena River at Puerto Wilches. In the same region, Tropical Oil Company was drilling a wildcat, also called Cimitarra 1, on the Gutierrez concession at about 700 feet on May 1.

Net production of Tropical's Infantas and La Cira fields on the De Mares concession were reported for April at 304,162 and 1,098,368 barrels, respecticevly. The concession had three rigs drilling in April.

El Condor Petroleum Company's Casabe 1, wildcat across the Magdalena River from Barranca Bermeja, was drilling below 4546 feet on May 1.

Mexico Denies Employment of Foreign Petroleum Engineers

Denial of reports that foreign petroleum engineers, mostly American, were coming to Mexico to direct the government's drilling program for 1941 has been made by the managing director of the government oil monopoly.

"All engineers and drillers in the service of Petroleos Mexicanos," he said, "are Mexicans with sufficient skill and experience to conduct this program, and at the present time we do not require the services of foreigners."

In the first quarter of this year, Mexican exports of crude and refined products totaled 3,567,800 barrels, as against 4,999,000 barrels during the same period last year. Following Mexico's voluntary elimination of the Japanese market for exports in December, 1940, practically all Mexican exports have been going to the United States.

Mexico's crude production in the 1941 first quarter was 9,394,000 barrels, 21 percent less than in the same period last year. Poza Rica field output amounted to about two-thirds Mexico's total.

Two Colombia Oil Concession Contracts Signed; Third Pends

A few weeks ago in Colombia, two oil concession contracts were signed and a third was pending signature, the three covering 201,800 acres. One contract, covering a tract solicited by Martin Theves and accepted in December, 1939, embraces 122,000 acres, and is near the port of Pt. Berrio on the Magdalena River. The second tract, solicited by Francisco Laserna, whose bid was accepted in July, 1939, covers 39,000 acres and is situated in the Department of Boyaca, Territory of Vasquez, near property of The Texas Company. The tract not yet granted, 40,800 acres, solicited by A. Castro Borrero and accepted in November, 1939, is on the southern Pacific coast in the Department of Narino.

Report Oil Imports Under Venezuelan Treaty

The Treasury Department on June 13 reported the extent of which quotas for imported oil under the Venezuelan treaty have been filled up to May 31.

The report pointed out that "other countries" (Mexico) had filled their quota of 138,587,400 gallons which might be imported at the lower excise rates, while Venezuela had sent in 787,227,665 gallons out of a quota of 1,913,049,600 gallons; the Netherlands 284,189,460 gallons out of 578,806,200 gallons, and Colombia, 13,315,290 gallons out of 86,956,800 gallons.

Plan Merger of I.T.I.O. And Cities Service

Cities Service Oil Company and Indian Territory Illuminating Oil Company will shortly merge, it was announced following a conference June 9. Representing Cities Service were W. Alton Jones, president; Temple W. Tulwiler, in charge of oil and gas interests, and Henry L. O'Brien, vice president, all of New York.

Burdette Blue, president of Indian Territory, said he would resign and that he planned a law office to act in advisory and consultative capacity for the merged corporation and other Cities Service interests. The latter firm controls a majority of Indian Territory stock, having early acquired a large block from the H. V. Foster estate.

Indian Territory is credited with the Oklahoma City field discovery, and has extensively wildcatted throughout Oklahoma and Kansas and parts of Nebraska.

Report Gas Allowable For Oklahoma City Field

Natural gas potential of the Oklahoma City field has been computed at 199,063,000 feet per day from 110 wells by the Oklahoma Corporation Commission. Present allowable is 42,989,000 feet daily. Production is from 10 horizons, Oswego, Layton, Prue, Tonkawa, Carmichael, Oolitic, Pawhuska, Hoover, Simpson and Cleveland.

Largest holder in the field is Indian Territory Illuminating Oil Company, which has 52 of the field's producers with a combined potential of 98,992,000 feet per day.

Oklahoma Allowable Hearing Set for June 27

Oklahoma State Corporation has set a hearing for June 27 to determine July market demand for crude. The June quota is 415,000 barrels daily, with the United States Bureau of Mines estimate at 459,700 barrels daily.

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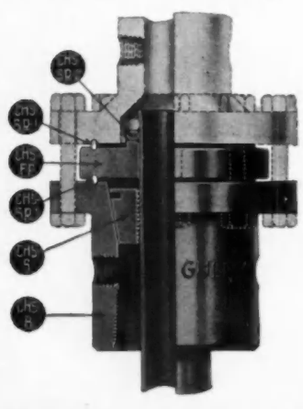

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U. S. FIELD OPERATIONS

Illinois Basin

Pipe Shortage Slowing Development in Illinois

New Illinois fields are indicated in Hamilton, Gallatin and Wabash counties; Washington County's Irvington pool extended; Mt. Carmel outpost testing Benoist. Casing sold out by some supply companies, without prospect of new stocks before August; some operators delaying new work accordingly.

Hamilton County: Jack Chevigny's Phillips (Hall) 1, SW NW SW 26-6s-6e, McClosky show 3171-76 ft, bottomed 3190 ft, waiting on cement at 3170 ft. Texas Co.'s McDonald 1, NW NE SW 11-6s-6e, 1½ miles west Dale pool and attempted link Dale and Hoodville pools, waiting cement to test Aux Vases, bottomed 3060 ft. Texas' Shasteen 1, C E½ SE SW 27-6s-6e, cored light oil shows in Benoist, 2956-71 ft, drilling 3100 ft.

Gallatin County: Blackstock et al's Cox 1, NE NW SE 2-9s-8e, McClosky 2870-79 ft, bottomed 3020 ft, flowed some oil, shut in for storage.

Wabash County: Wicksire - Jackson et al's Price 1, NE SW 14-1n-12w, mile south Allendale, cored Waltersburg saturation 1550-65 ft, cleaning out to test 6 ft Cypress; plugged from dry McClosky at 2360 ft.

Extension Tests: Powell-Risk's Holle 1, NW NW NE 15-1s-1w, ½ mile north Washington County's Irvington pool, swabbed 8 barrels hour, installing pump. J. E. Kennedy's Catson 1, C S½ SE NE 16-1s-13w, ½ mile northeast Wabash County's Mt. Carmel pool, cleaning out to Benoist 2105-12 ft; pool thus far without Benoist oil. H. A. Stiles' Trimble 1, SE SE SE 35-2n-12w, ½ mile northwest Wabash County's Allendale field, waiting cement, pipe set to Benoist, 1973-90 ft.

Patoka Field: Adams Oil & Gas Co., cored Merryman 22, C SE SW 21-4n-1e, below 2900 ft in Devonian, second test of formation in area; first found shows in Rosiclare and Devonian, but abandoned.

Scattered Wildcats: E. S. Adkins' Old Ben 1-F, NW SE 36-7s-2e, 6 miles south Benton pool, Franklin County, abandoned after testing McClosky 2906-21 ft. Potter's Sutton 1, SE SE SW 28-8s-7e, Palestine 1945 ft, waiting cement. Smith Petroleum Co.'s Mittendorf 1, SW SW SE 8-2s-4w, Washington County, Devonian 2372 ft, shut down 2450 ft.

Three New Wildcat Tests Started in Posey County

Three Posey County wildcats were located and in northern Gibson County a test was spudded for attempted east extension of Mt. Carmel (Illinois) pool.

Posey County: In southwestern tip of Point Township, east of Inman pool, Gallatin County, Illinois, R. B. Martin located Harlan-Wolfe 1, SE SW 22-8s-15w, Lupher Drilling Company, contractor. Martin also located Arthur Keck 1, SE NE 23-8s-15w, contract not let. Joe Dawson located Aldrich 1, SW SW SE fraction Sec. 31-5s-15w (11e), Point Township, in bend of Wabash River, 3 miles southwest South New Harmony pool.

Jack Less abandoned Philip Schreiber 1, NW SW SW 27-6s-13w, Bufkin area, Black Township; Cypress tested water, bottomed 2507 ft. Hollandsworth & Bander's Egli 1, NE NE SW 19-6s-12w, Caborn area Marrs Township, initialed 50 barrels day, Cypress at 2350-68 ft. Clearing titles before drilling in Whisenant & Tranchard's McFadden 1, SW NW SW 16-6s-14w, Black Township wildcat near Welborn Switch, casing set to Aux Vases.

Oklahoma

Stevens County Test Indicates Bromide Pool in Oklahoma

Bromide provides Stephens County discovery, with shallow area opened northwest Loco pool; Wilcox-sand pools indicated for Pottawatomie, Payne and Logan counties; east-west trend indicated for Logan County's Guthrie pool.

Stephens County: Skelly Oil Co. et al's Frensley 4, C NE NE 35-1s-5w, perforated 145 holes 7120-34 ft, 45 holes 7140-90 ft, 20 holes 7200-15 ft Bromide sand; drill-stem test 286 barrels 15 hours to show new pool, mud killed flow; to treat with mud acid and swab.

H. J. Brown's Lowery 1, NW SW NW 8-3s-5w, mile northwest Loco pool, Arbuckle 1814-56 ft, plugged 1160 ft, pay 1113-34 ft, pumped 35 barrels 34-gr oil for new pool.

Wilcox Tests: C. W. Sharp et al's Billington 1, NW SE SE 21-9n-4e, mile south and little east Crosbie Viola-lime discovery, Pottawatomie County, Wilcox 4636 ft, saturation to 4640 ft, 5½-inch 4634 ft, preparing to drill plugs. Continental Oil Co. et al's Leininger 1, SW SE SW 17-15n-3w, 2 miles northwest Seward pool, Logan County, First Wilcox 6219 ft, spotted stains 6222-40 ft, 1 ft saturation in core 6240-44 ft, 4 ft saturation in core 6244-56 ft, Second Wilcox 6390 ft, core 6379-95 ft salty; to test First Wilcox. Anderson-Prichard Oil Corp. et al's McGuire 1, SEc NW 20-18n-1e, 3 miles west Ramsey pool, Payne County, Wilcox 5214 ft, oil shows sandy dolomite 5214-25 ft, saturation 5225-26 ft, to make drill-stem test.

Guthrie Pool: Thomas N. Berry & Co.'s Howland 1, SWc NW 8-17n-1w, ½ mile east production, found Big Lime 7 ft lower than discovery to indicate oil well, drilling 5100 ft. W. C. McBride, Inc.'s Eastwood 3, NWc SW 7-17n-1w, location west production, further strengthened Bartlesville as potential oil zone, 26-minute drill-stem test showing 100 ft oil, some gas, bottom-hole pressure 2100 pounds, drilling below 5400 ft. Twelve rigs running in field.

Dill Pool: Carter Oil Co.'s Dill 1, C NW SE 2-11n-8e, 1934 discovery for Okfuskee County's Dill Pool, deepened from Cromwell sand, Hunton 3897 ft, bottomed 3950 ft, 3000 gallons acid, pumped 100 barrels 40-gr oil.

Kansas

New Oil Pool in Russell; Gas in Ellsworth County

Russell County recorded oil strike, and Greenvale pool extension; new Ellsworth County gas area; Rooks County wildcat indicates dolomite production.

Russell County: Shell Oil Co.'s Ruby 1, NWc NE 36-14-13w, 2 miles east Hall pool, Lansing 2815 ft, watery Arbuckle 3120-19 ft, plugged 2901 ft, perforated 24 holes 2836-40 ft, 36 holes 2848-57 ft, 6000 gallons acid, draw-down potential 2946 barrels oil, 54 barrels water.

Shell's Viejl 1, NEc NW 5-15-12w, ¾-mile west Greenvale pool, Sooy 3219 ft, bottomed 3252 ft, plugged 3230 ft, 15 barrels, installing tankage. Phil-Han Oil Co.'s Soukub 1, NWc SW 3-15-12w, Greenvale outpost, Lansing 2962 ft, pay 3031-35½ ft, total depth, 10,000 gallons acid, flowed 940 barrels.

Ellsworth Gas Area: Ingling & Parker's State 1, C SW SW 29-15-8w, ¾-mile southwest abandoned Ellsworth oil pool, Topeka lime 2194 ft, bottomed 2555 ft, perforated 33 holes 2475-94 ft; 0.24 million ft natural; acidized, 2.18 million ft, 872-pound rock pressure.

Rooks County: Clay Brothers Drilling Co. et al's Anderson 1, C W½ SW SW 28-9s-16w, between Laton and Kruse pools. Anhydrite 1275 ft, Topeka 2940 ft, Lansing 3195 ft, oil show 3201-07 ft, porous zone 3319-22 ft, cored saturation 3322-32-ft, 3390-3410 ft, Conglomerate 3518 ft, Simpson 3531 ft, Simpson dolomite 3542 ft, Simpson sand 3563 ft, 5-in 3381 ft, rigging tools to drill plugs.

Extension Tests: Cities Service Oil Co.'s Hall 1-H, NWc 35-11-17w, mile east Bemis, near South Bemis pool, Ellis County, 5000 gallons acid Arbuckle dolomite, bottomed 3629 ft, testing 10 bble. Lauck & Moncrief et al's Oeser 1, SEC 25-16-12w, mile west Krier pool, Barton County, Quartzite 3270-74 ft, swab 10 bbls hour.

Nebraska

Deeper Hunton Strike Stimulates Falls City

Deeper Hunton-lime pay at Falls City stimulated three offsets; heavy rains delay drilling; wildcats show poorly.

Falls City Pool: Offsets to Ohio Oil Co., Harry Harper et al's Sibbernsen 1, which flowed 876 barrels 30.8-gr oil, no water in 24 hours from second Hunton lime break, included Ohio's Sibbernsen 1, C S½ SW 17-1n-16e; Skelly Oil Co. on Davisson lease, and Harry Harper on Sibbernsen lease. Ohio's Bahr 4, C NE SW 7-1n-16e, northwest extension try, drilling 2100 ft.

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West Texas

Terry County Wildcat Prospective Oil Producer

Western Terry County has a prospective wildcat oil producer in process of completion, on northeast strike from Wasson and Waples-Platter. A Cochran County wildcat, or major Slaughter extension, is showing for producer, and three Abell outposts, Pecos County, proved dry in Ellenberger.

Terry County: The Texas Co.'s Murphy 1, C NW NW PSL Section 22, Block K, unloading mud through tubing after logging broken oil saturation and fair porosity the last 50 feet in coring to 5275 feet, 5½-in cemented 5166 ft to test. Top San Andres 4530 ft, elevation 3548 ft, 194 ft high correlated Yingling et al's Barrier-Gulf 1, Yoakum County 5501-ft failure 5½ miles southwest. Latter had trace oil 5240-60 ft.

Cochran County: O'Neal Drilling Co. and Wheeler's Wright 1, Labor 12, League 60, Martin County School Lands, 3½ miles northwest Slaughter production, swabbed 5 to 10 barrels oil hour following 5000 gallons acid at 4950-83 ft; stray water 4885-4903 ft excluded by 5½-in at 4940 ft; possible Wright 1 is outpost, although dry hole 2¾ miles southwest.

Abell field: Phillips Petroleum Co.'s Silverman 2, southwest offset discovery, flowed 268 barrels oil in 5 hours through tubing chokes, perforations 5367-82 feet in Simpson topped at 4820 ft. Silverman 1, ¼-mile east, made a larger flow from 5150-65 ft, Simpson 4740 ft. Variations common for area. George Abell et al's Rixse 1, east outpost, flowed 48 barrels oil and 21 barrels salt water natural through ½-inch choke, plugged back 5043 to 5000 ft. Magnolia's McKee 1, east offset to the latter, had dry Ellenberger 5808 ft, elevation of 2390 ft, coring 5835 ft. The company's Gerety 1, northwest outpost, Ellenberger 6088 ft, elevation 2396 ft, coring dry dolomite 6135 ft, Baldwin-State 2 and McKee-Tex-Mex 2, both near the first deep failure on the structure, coring 6135 ft and 6060 ft, respectively, near Simpson-Ellenberger contact. Sinclair Prairie's Grove 1, southeast outpost, was drilling 5995 ft, no show. Some of tests drilling below regular Simpson on short-term leases. New tests: Magnolia and Stanolind's McKee-Tex-Mex 3, southwest corner lot 8, section 24, and Stanolind's Thrap-Walker 1, center lot 3, sec 23, northwest outpost. Stanolind's Conry-Davis 1, 4 miles southeast Abell discovery, prepared to acidize Ellenberger at plugged back depth of 4895 ft, 7-in pipe 4830 ft, 5 ft in dolomite.

Wasson Ordovician: Production test Amon G. Carter's Wasson 4-D, prospective Ordovician strike for Gaines County sector, due early this week. Bottomed 11,100 ft, third deepest in West Texas, in upper Ellenberger. Plan to cement 5½-in near bottom altered when hungup near 10,000-ft, to use packers on 2-in tubing to test bottom saturation before testing oil saturated zone logged 50 ft up hole. Wasson 4-D reported Simpson absent. Two or more possible oil zones below regular 5100-ft Permian were logged, with either 6274-6610-ft broken pay and 7100-7065-ft zone considered productive.

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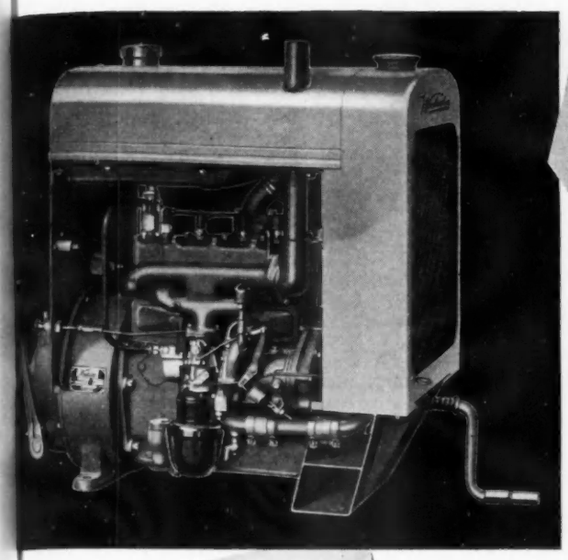

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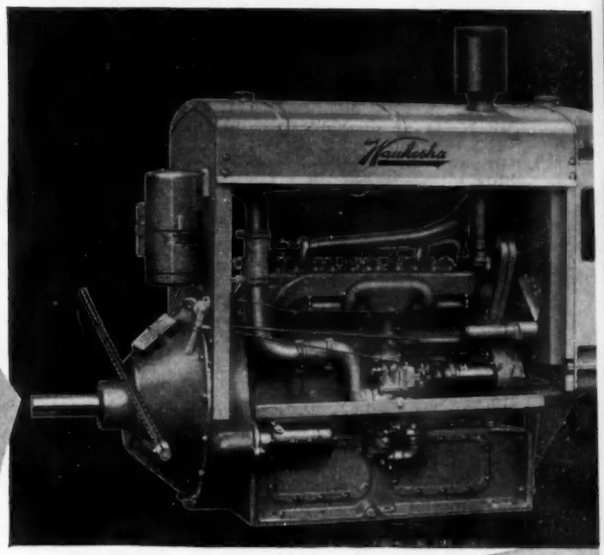

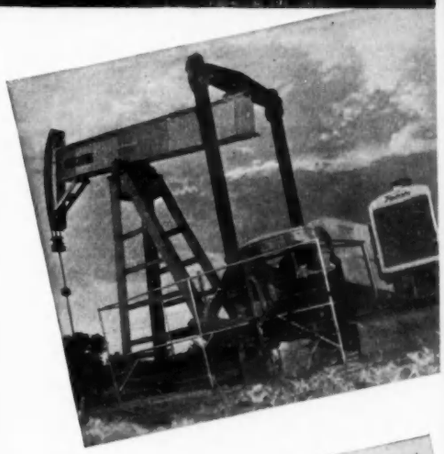

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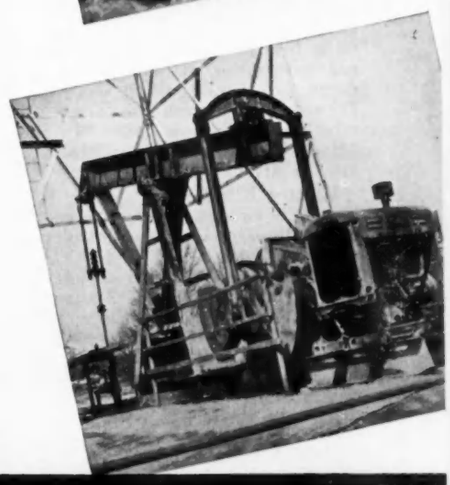

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North Texas

Clay County Well Makes 100 Barrels in 3 Hours

Clay County's Neb-Tex prospect contributed a Bend lime producer; northern Young County has another deep strike on tap, while second test for Burns-Larimore deep pool disappointing on preliminary swabbing.

Clay County discovery: Bridwell Oil Co.'s Myers 2, 3350 ft from west and 2185 ft from north lines C. Thompson sur and on 1800-ac lease flowed 100 bbls high-gravity oil 3 hours following 3000 gallons acid, perforations 5776-92 ft. Production from 5780-96 ft in Bend topped at 5581 ft. Hole was carried to Ellenberger at 6078-98 ft. Other markers: Barnett shale 5917 ft, Simpson 6011 ft, Mississippian absent. Since casing pressure dropped from 700 to 75 pounds during above gauge the well is not capable of maintaining initial rating. Myers 2 is 1/3-mile southeast of an abandoned pumper completed in Strawn at 3400 ft in 1924. Bridwell Oil Co.'s Myers 1, 6000 ft southwest of new strike, is to be re-worked due to the appearance of oil after temporarily abandoning in Ellenberger at 6038-65 ft, with oil and gas probably coming from Mississippian at 5997 ft.

Young County: T. D. Humphrey et al's Williamson 1, SE NE TE&L Section 601, 2½ miles southwest Jean and ⅝-mile southeast of 2900-ft wildcat producer, prepared to perforate opposite broken saturation at 4980-5055 ft, tentatively identified as Mississippian. Drill-stem test 5005-32 ft yielded gas with free oil. Seven-inch at plugged depth 5084 ft after Ellenberger barren 5165-5246 ft. It is on 480 acre lease. Associated Developers', Brazelton-Sparks 1 made a small producer in 2900-ft sand in 1934 after plugging back from 4390 ft, although originally scheduled to test Ordovician.

Shell Oil Co.'s Bloodworth 1-A, north offset to the Burns-Larimore prolific Mississippian producer at 4897-4927 ft, dry on swabbing in broken saturation in Ellenberger 5038-5100 ft, with 4½-in at 5040. Top of Mississippian 4843 ft, 60 ft low to discovery, and only nominal saturation at 4910-48 ft. Consolidated Oil Co.-Ray Oil Co.'s Dunagan 1, mile northwest discovery, logged streaks saturation 4889-99 ft, with Mississippian tentatively 4898 ft, 115 ft low to discovery.

Electra Ellenberger: Magnolia Petroleum Co. proposes to continue to deepen shallow stripper wells as result of its H&TC 65, SW NW H&TC Section 15, Block 13, Wilbarger County, having flower 63½ bbls oil, 24-hour gauge, 3/16-in choke, perforations 2992-96 ft, Ellenberger dolomite topped 2994 ft. This is the first Ordovician producer for the 31-year old field. Company is conditioning H&TC 64, ½-mile east of discovery, to deepen with rotary. Other owners plan try for lower pay.

K-M-A deep: Tide Water Associated Oil Co., Perkins & Cullum's Pettit-State 2-E, near northwest edge of field's Ordovician area, promises to be one of largest natural completions, having flowed 200 bbls oil on 1¼-hr test, main saturation at 4402-22 feet in Ellenberger, topped 4387 ft.

Montague County: Hults & Owens' Summers 1, north offset to Bend discovery for Hults-Owen pool, drilling plugs from 7-in 7213 ft, bottomed in crevice 7239 ft, possibly in Simpson or Mississippian. Electrica survey recorded 3 possible oil zones up the hole.

Cooke County: Sinclair Prairie Oil Co.'s Atlas 1, 3600-ft north outpost for northeast portion Walnut Bend, tested salt water Snuggs sand 4682-97 ft, and was drilling 5010 feet; Marshall 1, 1¼ miles northwest production, drilling 3680 ft.

Jackson County: Panhandle Refining Co., largest owner undrilled locations in Bryson district, proposes between 30 and 40 wells through the remainder of year.

Southwest Texas

LaSalle County Wildcat May Drill Beyond 12,000 Feet

The Lower Coast district had new sands and extensions; LaSalle County wildcat may go below projected 12,000 ft to reach objective zone, while a Wilcox test in that county shut down for orders; Rincon field extended.

Lower Coast District: F. M. Bovkin's Scrivener 1, mile east of Midway pool, San Patricio County, on 15-minute drill-stem 6070-79 ft, recovered 300 ft 38.5-gr oil, 23 ft mud, no water, 230 pounds pressure, lower sands showed oil and water. British-American Oil Producing Co.'s Ivey 3, 3 miles northeast Scrivener 1, perforated 7 shots 6060-51 ft, opening sand, flowed 68 barrels 46.5-gr oil 12/64-inch choke, 1975 pounds tubing, 2050 pounds casing pressures, gas/oil ratio 2600/1. Sand is 700 ft below Midway discovery pay.

Wellington Oil Co.'s Welder 1-C, mile south Odem field, between Odem and Angelita areas, San Patricio County, indicated oil sand at 5426-44 ft by electric log and samples; perforated 5430-36 ft, testing; previously flowed 36 barrels 57-gr distillate 2.0 million ft gas, ¼-inch choke, perforated 6715-20 ft, to indicate new Odem field sand.

Albert Plummer's Terrell 6-A, perforated 4703-11 ft flowed 130 barrels 25.5-gr pipe-line oil, ⅛-inch choke; tubing, casing pressures 850, 1375 pounds, respectively; gas/oil ratio 800/1; new deep sand Victoria County's Colette Creek field.

Norsworthy Production Co.'s J. G. Toland 1, Sec. 36, 7000 ft northeast La Rosa field, Refugio County, recovered 510 ft oil, 90 ft salt water, 15-minute drill-stem test 6205-29 ft, ¼- and ⅜-inch chokes, to be completed.

Bay-Tex Oil Corp. and Atlantic Refining Co.'s McCulloch 2, seeking deeper pays in Aransas County McCampbell, abandoned after tests above 10,496 ft.

Humble Oil & Refining Co.'s Aransas Bay-State 1, Taylor Island, Nueces Couty, unsuccessfully perforated 8426-30 ft; testing through perforations 8350-60 ft.

San Antonio District: Quintana Petroleum Corp. et al's J. L. Washburn 3, LaSalle County wildcat, remained drilling Navarro-Taylor series 9500 ft, expecting first limes and chalks 10,500 ft, of which several thousand feet are expected. May go below projected 12,000-ft depth. Important geological exploration, it found no sands below 5500-ft Wilcox; ran 9⅝-inch 5800 ft.

Shell Oil Co.'s McManus, Brushy Creek prospect, Charles P. Delmas league, LaSalle County, shut down at 9000-ft contract depth; showed 20 ft good Cockfield sand 4700 ft, which may be tested rather than carrying hole deeper.

Rincon Field: Continental Oil Co. and W. R. Davis' Slick 95-B, mile south outpost, perforated 3916-28 ft, flowed 176.5 barrels 42.7-gr oil, 3/16-inch choke, pressures 440 pounds tubing 650 pounds casing; gas/oil ratio 434/1.

Scattered Wildcats: W. R. Davis' Arizona & Texas 1, 7300 ft southeast Hidalgo County's McAllen field discovery, drilling 8000 ft. Hiawatha Oil & Gas Co.'s Vaelle 1, mile northeast Duval County's North Sweden area, salt water Hiawatha sand 5930 ft; perforated 4883-90 ft, testing.

East Texas

Larissa Prospect Disappointing For Woodbine Production

Larissa geophysical prospect in northwestern Cherokee County proved disappointing for Woodbine production when Bobby Manziel et al's Nagle 1 encountered water sand 4945 ft, elevation 368 ft; drilling below 4980 ft. Woodbine failure in east portion Big acreage block held by Humble Oil & Refining Co.

New Salem Area: Two tests active near Sears & Phillips, recent oil and gas discovery, southwestern Rusk County, on the pool tract in Woodbine 4054-62 ft. Gordon Grasty et al's Kangerga 1, ¾-mile west by north of producer, drilling below surface pipe; R. S. Kirby et al located Richardson 1, J. Sanches Survey, and were drilling 4210 ft in Hall Wood 1, wildcat originally carried 4201 ft last year by Jeff Bolton et al. E. L. Baker et al located semi-wildcat on Evans 115-acre tract, Wade H. Waters Survey, on strike between Pool 1 and Lone Star Pool, east edge Cherokee County.

Hawkins Field: Humble's Christian Missions 1-B expanded townsite producing area ½-mile northeast with initial flow 338 bbls 24.7-gr oil 18 hours, ¼-in choke, Woodbine perforations 4831-38 and 4840-46 ft; Top Woodbine series 4440 ft, elevation 456 ft, indicating flattening of structure this direction. Completion gives Texas Co. south offset to drill. Humble's Parrish 1, H. E. Watson Survey and east of Gas Cap area, testing perforations 4562-71 ft, having drilled Georgetown lime 4672-4710 ft, elevation 363 ft.

Texas Gulf Coast

Clodine Strike Develops Water Believed From Lower Sand

Recent Fort Bend County discovery makes over 40 percent salt water, believed to come from lower sand. Three wildcats were among the week's new starts.

Fort Bend County: Providence Oil Co.'s Hatfield 1, Clodine discovery, made over 40 percent salt water through perforations at 7497-7503 ft in 60-ft sand

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that showed no water on core analysis; 62 barrels 49-gr oil first 24 hours, water showing immediately thereafter; tubing, casing pressures 2500, 2850 pounds, respectively; water believed from lower sand. Providence to start another test.

Flooded riverbottom delayed laying gas line to Cockburn's wildcat northeast East Bernard field; rig up.

Montgomery and Brazoria Tests: Superior Oil Co.'s west outpost Lake-Creek area, Montgomery County, pay section too broken to estimate value, drilling below 9370 ft. H. E. Williams cored sand 6275-96 ft on North Lochridge prospect, Brazoria County; drill-stem test mechanically imperfect; drilling toward 6500-ft contract depth; to come back up and test.

Wildcat Starts: McDonald & John Mayo's Hebert Trust 1, southwestern Jefferson County, waiting cement 1500 ft surface casing; H. E. Williams et al's Trinity Rice 1, Winnie area, Chambers County, drilling; Glenn McCarthy's Triangle Development 1, northeast Liverpool, Brazoria County, setting surface casing.

Louisiana Permits

Twenty drilling permits were issued last week by the Louisiana Department of Minerals, of which 7 were in North Louisiana, divided among the following parishes: Caddo 1, La Salle 1, Morehouse 1, Ouachita 1, and Union 3. The 13 in South Louisiana were in the following parishes: Acadia 1, Calcasieu 2, East Baton Rouge 1, Evangeline 1, Iberia 1, Iberville 1, Jefferson 1, La Fourche 1, Plaquemines 2, and St. Martin 2.

Louisiana Gulf Coast

Third Sand Productive at Barataria, Jefferson Parish

Barataria, Jefferson Parish, received third pay. Shallow Richie field, Acadia Parish, had two tests rigging, one drilling, one completed during week.

Jefferson Parish: California Co.'s Fleming Plantation C-7, perforated 72 holes at 7620-52 ft for 349 barrels clean oil, 3/16-inch choke, tubing pressure 1135 pounds, gas/oil ratio 480/1, 197-barrel allowable, Barataria field's third sand. California's Fleming Plantation 7 attempting gas completion through perforations at 10,051-056 ft.

Stanolind Oil & Gas Co. awarded contract for Pitre 1, Westwego field, to Dixie Drilling Co., rigging up.

Acadia Parish: Grubb & Hawkins' Ruppert 3 and Republic Production Co.'s Ruppert 1, rigging up, and Vincent & Welsh's Hayes 2, drilling 2500 ft, indicating increased interest in Richie field. Grubb & Hawkins completed Ruppert 2 for 111 barrels, 9/64-inch choke, sand topped 3501 ft, bottomed 3507 ft.

Wildcat Progress: Atlantic Refining Co.'s test 1½ miles west Newlin, Beauregard Parish, top Wilcox 9360 ft, electric log, coring 9400 ft; Humble Oil & Refining Co.'s Edgewood 1, Abbie Joe area, same parish, drilling 10,232 ft sandy shale, no shows.

Cockburn et al's wildcat Lake Latainer area, Avoyelles Parish, delayed drilling plugs for lease deals.

Pan American Production Co.'s Scarlet 1, SW 8-11s-9w, Moss Lake area, Calcasieu Parish, 10,000-ft test, and W. T. Burton's Calcasieu National 1, Oberlin area, Allen Parish, preparing to spud.

Stanolind's Realty Operators 1, Southdown area, Terrebonne Parish, cored 10,700-800 ft, abandoned 11,329 ft.

Port Allen Field: Amerada Petroleum Corp.'s Wilberts 2, field's second test, cored several sands with oil shows, coring 9700 ft.

North Louisiana

LaSalle Parish Wildcat Flows 15 Barrels Hour, Wilcox

LaSalle Parish got a new Wilcox oil field on Olla trend; test west of Ajax discovery shows dry gas; announce second 10,000-foot Smackover test north of Lisbon, Claiborne Parish.

LaSalle Parish: Herschel Sciavally et al's Louisiana Delta 1, C SW NE 12-6n-4e, Cockfield 1540 ft, Cook Mountain 2115 ft, Sparta 2260 ft, Cane River 2990 ft; test 4757-62 ft oil, gas, wash water, squeezed off; perforated Wilcox 4757-62 ft, 15 barrels oil hour, ¼-inch choke; tubing, casing pressures 190, 525 pounds, respectively; gas/oil ratio 300/1. Wilcox at Olla is 2200-2400 ft; at Nebo 3500-3600 ft.

H. L. Hunt's Goodpine C-1, SW NW 33-8n-3e, 3 miles north Nebo field, Wilcox production, indicated Wilcox oil well, being placed gas lift.

Ajax Area: Edmans Petroleum Co.'s Tanner 1, C SE SE NE 13-10n-11w, DeSoto Parish, ½ mile west Ajax oil discovery, DeSoto Parish, sand 3172-3209 ft, bottomed 3255 ft, perforated 3190-3200 ft, dry gas, ungauged.

Claiborne Smackover Test: Union Producing Co. will drill McDonald 1, Sec. 13-21n-5w, west of company's Smackover gas-distillate discovery.

Leasing Activity: R. E. Collins located Madden 1, SW SE 3-16n-8w, Bienville Parish, where Carter Oil Co. has seismograph unit working north of supposed fault from Vacherie salt dome, and west abandoned test Sec. 5-17n-7w.

Arkansas

Union County Wildcat Producing From Travis Peak

Union County wildcat produces from Travis Peak and a Smackover geophysical test staked; deep test resumes drilling.

Union County: Crescent Drilling Co.'s Burns 1, NE SW 13-18-17, 3 miles east Schuler, flowed 94 bbls 43.1-gr, in 14 hours, 15/64-in choke, perforated 5542-46 ft. A. W. Erwin let contract to Big West Drilling Co. for a Smackover test, C SW NE 32-18-16, near Wesson, geophysical prospect.

Columbia Wildcat Resumes: McAlester Fuel Co.'s Frank 1, C SE SE 16-18-21, 200 ft low on Buckner at 8702 ft, hung drill pipe 2900 ft, side-tracked, resumed drilling 8782 ft.

Dorcheat Spacing: Arkansas Oil & Gas Commission at El Dorado June 20 will give special attention to Dorcheat spacing; rapid drop bottom-hole pressure may bring change from 40 to 160 acres.

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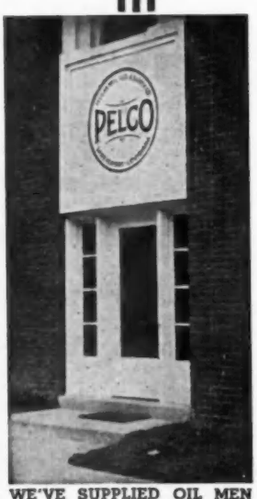

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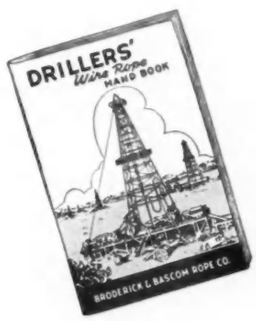

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Michigan

Oceola County Strike Starts Rush; Want 20-Acre Spacing

Completion of first high-potential well in Osceola County's Lincoln district brought 4 starts, 7 locations, but further drilling may wait a board ruling on petition for 20-acre spacing. Six tests, including 2 flowing wells, are on 10-acre tracts. Production is from 3640-ft Monroe; first well in this zone flowed 252 and 228 barrels hour, 3.4 million ft gas daily. District holds greatest production promise since 1938-39 discoveries and development.

Arenac County's North Adams pool added Monroe to Dundee production; a Van Buren County test between Bloomingdale and Trowbridge pools pumped 200 barrels natural.

Osceola County: Weber Oil Co. deepened Fatum 1, 660 ft east Monroe-lime strike, from 3517 ft in Dundee to 3621 ft for open flow of 143 barrels hour, 1845 barrels in 24 hours, choked. Pure Oil Co., Weber, Gulf Refining Co. and C. W. Teater control practically all acreage; Pure asking 20-acre spacing. Hearing to determine necessity of proration order expected.

Arenac County: Don Rayburn's Fox 1, 21-19n-3e, Adams Township, first North Adams pool well below 2900-ft Dundee, pumped 40-50 barrels a day from 4300-ft Monroe after acid.

Van Buren and Isabella Strikes: Fortney Oil Co.'s Pullin 1, 1-1s-14w, between Bloomingdale and Trowbridge pools, Van Buren County, pumped 200 barrels initial from 1284-ft Traverse; five locations. Belvidere Oil Co.'s Pease 1, 21-13n-5w, Isabella County, 1.25 million ft natural from 1270-ft Stray.

California

Open Shallow Oil Area In Los Angeles County

A shallow oil area was opened in Los Angeles County, while the northwest edge of West Dominguez pool appeared defined. A wildcat was staked in Fresno County area that has been extensively leased.

Los Angeles County: Wood-Callahan Oil Co.'s Dominguez Estates 1, Sec. 5-4-14, new area, pumped 75 barrels 16.2-gr, 411-ft zone open to bottom, 3730 ft. Operator's commitments in another area will delay further drilling.

West Dominguez Associates' Gross 1, outpost South Gardena tract, cored 10-ft oil sand at 7300 ft, compared to 30-40 ft in other West Dominguez wells, to indicate northwest edge; to plug back to 6000 ft and whipstock south or southeast. Crawford-Hiles et al's South Gardena 1, flowed 1200 barrels 31-gr, ¾-in choke. Four other projects active.

Fresno County: General Petroleum Corp.'s Burrell Ranch 1, tentatively located Sec. 2-17-18, in area extensively leased past few months; operator holds 5000 acres.

Shell Oil Co. located second test in new Kerman-Raisin City gas area, Sec. 19-15-18, to drill 4700 ft. Discovery, Properties, Inc. 8-18, Sec. 18-15-18, initialed 3.03 million ft.

UNITED STATES WELL COMPLETIONS

Arkansas

Union County (Wildcat)—
Crescent Dr. Co., Burns 1, 13-18-17 — Init. Prod. 155 — Depth 7607
Union County (Rainbow City-Champagnolle)—
Harry Peren, Raulston 1, 13-17-14 — Init. Prod. * — Depth 2813
Union County (Smackover)—
McDonald & McDonald, Childs 1, 8-16-16 — Init. Prod. 25 — Depth 2703
Union County (Urbana)—
Hassie Hunt, Union Sawmill 1, 34-17-13 — Init. Prod. * — Depth 3705
Marine Oil Co., Thompson E-8, 10-18-13 — Init. Prod. 100 — Depth 3002
J. E. Heard, Union Sawmill 1, 32-18-13 — Init. Prod. * — Depth 3205

California

Fresno County (Coalinga East Eocene)—
Superior, Cagle B-10 — Init. Prod. 1495 — Depth 8180
Fresno County (Raisin City)—
Shell, Properties Inc., 8-18 — Init. Prod. ¶3.0 — Depth 6429
Kern County (Coles Levee)—
Standard, KCL-20-9 — Init. Prod. ¶8.9 — Depth 5136
Union, Kernco 78-2 — Init. Prod. 617 — Depth 9813
Kern County (Mt. Poso)—
General Pet., Heisen 35 — Init. Prod. 147 — Depth 1828
Kern County (Richgrove)—
White River Explor. Co., Konda 1 — Init. Prod. * — Depth 2013
Kern County (Ten Section)—
Shell, KCL-A 75-30 — Init. Prod. 438 — Depth 8210
Kern County (Terra Bella)—
G. W. Stout, Stout 1 — Init. Prod. * — Depth 1135
Los Angeles County (Dominguez)—
Union, Carson 16 (pb 8515) — Init. Prod. 200 — Depth 8569
Hellman 50 — Init. Prod. 90 — Depth 4255
Los Angeles County (Long Beach)—
Richfield, Connett 3 (pb 5860) — Init. Prod. 121 — Depth 6247
Shell, Church 1 — Init. Prod. 103 — Depth 4755
Los Angeles County (Newhall Potrero)—
Barnsdall, RSF 20 — Init. Prod. 1150 — Depth 7216
Los Angeles County (Wilmington)—
Long Beach Oil Dev. Co., No. 27 — Init. Prod. 752 — Depth 3988
A. D. Mitchell, Newman 1 — Init. Prod. 175 — Depth 3725
Pacific Western Oil Corp., Patten 2 — Init. Prod. 250 — Depth 3556
Orange County (Huntington Beach)—
Signal O. & G. Co., Signal-Bolsa 12-B — Init. Prod. 208 — Depth 2410
San Joaquin County (Tracy)—
Standard, Blewett 2 (pb 3869) — Init. Prod. ¶3.74 — Depth 5507
Santa Barbara County (Elwood)—
Texas, Bishop A-3 — Init. Prod. * — Depth 3239
Santa Barbara County (Santa Maria Valley)—
Signal O. & G. Co., Yelkin 7 — Init. Prod. No. Est — Depth 5085
Union, Russell 4 — Init. Prod. 1042 — Depth 4611
Acquistapace 2 — Init. Prod. 42 — Depth 4461

*Failures; †Junked; ¶Million cu. ft. gas.

Ventura County (Venura Avenue)—
Shell, Taylor 131 (pb 7820) — Init. Prod. 2411 — Depth 7990

OLD WELL DEEPENED

Ventura County (Ventura Avenue)—
Tide Water, McGonigle 5 — Init. Prod. 1320 — Depth 8264

Illinois

Clark County—
Ray Brown et al, Redman 1, nw nw sw 13-12n-14w — Init. Prod. * — Depth 450
Clinton County—
Johns Oil, Sanders 1, s½ sw nw ne 17-3n-1w — Init. Prod. * — Depth 1390
Crawford County—
John Stelle, Davis 1, ne sw ne 23-7n-13w — Init. Prod. * — Depth 2010
Edwards County—
Cities Service, Thread 1, nw nw nw 18-1s-11e — Init. Prod. 338 — Depth 3316
Fayette County—
Carter, McCollum 4, sw nw sw 2-8n-3e — Init. Prod. 72 — Depth 1606
St. Pierre 6, se sw se 36-9n-3e — Init. Prod. 360 — Depth 1614
Crawford County—
Bay Oil, Saunders 1, ne sw se 23-6s-2e — Init. Prod. 225 — Depth 2116
Mosebach Oil, Sanders 1, se sw se 23-6s-2e — Init. Prod. 264 — Depth 2127
Shell, CW&F Coal Co. 6, nw ne sw 24-6s-2e — Init. Prod. 225 — Depth 2103
CW&F Coal Co. 2, w½ ne nw 36-6s-2e — Init. Prod. 497 — Depth 2183
Adkins et al, CW&F Coal Co. 1, sw se sw 25-6s-2e — Init. Prod. 530 — Depth 2166
CW&F Coal 5, sw se se 25-6s-2e — Init. Prod. 378 — Depth 2139
CW&F Coal 10, n½ nw sw se 25-6s-2e — Init. Prod. 287 — Depth 2138
Myers Dr., Rice 1, n½ ne nw se 26-6s-2e — Init. Prod. 40 — Depth 2129
Shiek & Buerkle, Akin 1, se se se 16-6s-4e — Init. Prod. * — Depth 3089
Gallatin County—
Phillips, Egyptian T&T 3, ne se ne 16-8s-10e — Init. Prod. 246 — Depth 2081
R. P. Martin, Clayton 1, s½ se sw 16-9s-10e — Init. Prod. * — Depth 2810
Hamilton County—
Carter, Grimes 2, sw sw nw 2-6s-6e — Init. Prod. 644 — Depth 3048
Texas, Edwards 2, sw nw sw 2-6s-6e — Init. Prod. * — Depth 3280
Shell, Carey 1, se sw nw 3-6s-6e (pb 3120) — Init. Prod. 212 — Depth 3198
Pure, Cuppy 4, c se ne nw 7-6s-7e — Init. Prod. 256 — Depth 2983
Jasper County—
Pure, Davidson 5, w½ se sw 17-5n-10e — Init. Prod. 24 — Depth 2825
Hesler 1, w½ sw se 20-5n-10e — Init. Prod. * — Depth 2860
Dickerson 2, c e½ nw nw 20-5n-10e — Init. Prod. 36 — Depth 2825
Price 1, c e½ se se 17-6n-10e — Init. Prod. 53 — Depth 2848
Hemrich 2, c w½ sw se 32-6n-10e — Init. Prod. * — Depth 2875
Frohnugh 5, c w½ se sw 33-6n-10e — Init. Prod. 8 — Depth 2835
Jefferson County—
Chris Pearson, Carpenter 1, nw nw ne sw 10-1s-2e — Init. Prod. 112 — Depth 1959
Clark Nye, Sargent 1, sw sw nw 22-1s-2e — Init. Prod. 63 — Depth 1938
Lawrence County—
C. E. Everts, Catt 1, sw se sw 23-2n-12w — Init. Prod. 25 — Depth 1397
Kentucky Nat. et al, Prather 5, c nw nw 20-4n-10w — Init. Prod. * — Depth 1175
Marion County—
Hudson-Hess, Young 1, e½ sw sw sw 7-2n-2e — Init. Prod. * — Depth 3597
Paul Dorn, Verbers 1, ne se ne 6-3n-1e — Init. Prod. * — Depth 1514
Ruwaldt, Mason 1, nw nw ne 18-3n-1e — Init. Prod. 67 — Depth 1442
Booth et al, McMackin 8 ne sw sw 34-3n-2e — Init. Prod. 60 — Depth 2027
Magnolia, Peddicard 1, ne nw se 34-4n-1e — Init. Prod. 120 — Depth 1364
Shell, Hedley 3, se sw ne 34-4n-1e — Init. Prod. 77 — Depth 1365
Highland Oil, Thalman 3, nw sw nw 35-4n-1e — Init. Prod. 123 — Depth 1568
McLean County—
Funks-Grove, Crawford 1, nw nw nw 28-22n-1e — Init. Prod. * — Depth 2115
Richland County—
Case et al, Bowers 1, 34-3n-14w — Init. Prod. 240 — Depth 2129
Pure, Kermicle 4, w½ ne ne 6-4n-10e — Init. Prod. * — Depth 2896
Bauman Cons. 1, c w½ nw se 7-4n-10e — Init. Prod. * — Depth 2970
Myers 3, c s½ ne sw 7-4n-10e — Init. Prod. * — Depth 2995
Bolander 2, e½ ne nw 4-5n-10e — Init. Prod. 44 — Depth 2830
Wabash County—
Shell, Parkinson 1, nw sw sw 17-1s-12w — Init. Prod. 185 — Depth 2043
Menefee, Hoskins 1, se nw blk 228 20-1s-12w — Init. Prod. 350 — Depth 2451
Olds, Ford 1, ne ne ne 20-1s-12w — Init. Prod. 140 — Depth 2074
Yingling et al, Gallatin 1, se sw nw 30-1s-12w — Init. Prod. * — Depth 2515
Snowden & McSweeney, Hayes 1, s½ se nw se 3-1n-12w — Init. Prod. * — Depth 2348
Washington County—
Kingwood, Brink 4, ne se se 15-1s-1w — Init. Prod. 360 — Depth 1534
Sherman et al, Goodner 1, ne sw sw 3-3s-2w — Init. Prod. * — Depth 1399
Wayne County—
Gordon-Muhlbach, Muhlbach 1, w½ se sw 36-2n-8e — Init. Prod. * — Depth 3120

[*Continued on next page*]

Summary of Drilling Operations in the United States, Week Ended June 14, 1941

	WELLS COMPLETED								*PERMITS FOR NEW WELLS				
		New Wells Drilled for Oil and Gas											
	Total for Week	Oil Wells	Gas Wells	Failures	†Miscellaneous	Initial Production	Total 1941	Total this Date 1940	This Week	Total this Month	Total 1941	Total this Date 1940	Year Total 1940
Alabama	.....	....	....	....	....	.....	1	1	....	.....	.....	.....	.....
Arkansas	6	3	....	3	....	280	75	90	4	10	79	66	153
California	24	18	3	3	....	10,561	508	521	40	60	487	510	1,042
Colorado	.....	....	....	....	....	.....	8	3	....	.....	.....	.....	.....
Illinois	82	49	....	24	9	9,852	1,476	1,700	119	196	1,954	2,034	4,532
Indiana	10	5	....	5	....	1,374	237	182	....	.....	.....	.....	.....
Iowa	.....	....	....	....	....	.....	2	.....	....	.....	.....	.....	.....
Kansas	46	33	....	13	....	32,784	945	832	57	110	965	926	2,048
Kentucky	9	3	....	6	....	47	137	127	....	.....	.....	.....	.....
Louisiana	41	25	4	12	....	4,011	629	780	20	63	749	775	1,658
Michigan	20	10	2	8	....	1,444	424	589	14	30	363	548	1,093
Mississippi	6	6	....	....	....	3,965	83	91	....	.....	.....	.....	.....
Missouri*	.....	....	....	....	....	.....	6	5	....	1	8	.....	26
Montana	.....	....	....	....	....	.....	81	73	....	.....	.....	.....	.....
Nebraska*	.....	....	....	....	....	.....	39	.....	2	4	38	.....	69
New Mexico	2	2	....	....	....	46	151	349	9	17	178	323	559
New York	26	17	....	....	9	108	339	481	....	.....	.....	.....	.....
Ohio	21	1	12	8	....	9	718	388	....	.....	.....	.....	.....
Oklahoma	50	33	2	12	3	9,748	939	1,019	44	97	908	898	1,888
Pennsylvania	56	40	6	1	9	44	1,046	1,781	....	.....	.....	.....	.....
South Dakota	.....	....	....	....	....	.....	....	1	....	.....	.....	.....	.....
Tennessee	.....	....	....	....	....	.....	....	8	....	.....	.....	.....	.....
Texas	214	161	4	48	1	88,181	4,328	4,886	347	471	4,927	5,791	11,170
Utah	.....	....	....	....	....	.....	....	1	....	.....	.....	.....	.....
West Virginia	10	3	6	1	....	22	306	254	....	.....	.....	322	782
Wyoming	.....	....	....	....	....	.....	45	66	....	.....	.....	1	1
Total this week	623	409	39	144	31	162,476	12,523	14,228	656	1,059	10,656	12,194	25,021
Total last week	570	359	42	124	45	163,627	11,900	13,567	403	383	9,980	11,579	25,021
Total this year	12,523	7,932	1,027	2,863	638	3,691,378	....	.....	....	.....	....	.....	.....

* This tabulation includes those states where weekly data are available; figures for Missouri date from August 10, 1940; Nebraska from August 3, 1940.
† Includes old wells deepened, water-intake, gas input, and salt water disposal wells.

United States Well Completions—*Continued*

Company, Well and Location	Init. Prod. Bbls.	Depth

ILLINOIS—Continued

White County—
Wabash O. & G., Reeves 3, ne se sw 28-3s-14w 38 2614
1st Natl. Pet. Trust, Hammock 5, sw sw se 31-3s-8e ..... • 3261
Goad & Hayes, Carey Smith 1, se sw ne ne 30-3s-9e 146 3532
Buell & Herndon, Bond 11, se se nw 8-4s-14w 50 2860
Paul Miller, Ford 5, ne sw sw 16-4s-14w 140 2942
Tipton et al, Baultinghouse 4, ne se ne 17-4s-14w 105 2857
Joe Minton et al, Fox Isl. Sch. 1, sw nw sw se 28-4s-14w 350 2844
Superior, Ford 4, se ne se 28-4s-14w 250 2845
Ford 11, ne ne se 28-4s-14w..... 110 2851
Ford 12, sw ne sw 28-4s-14w.... 600 2852
Ford 13, ne ne sw 28-4s-14w... 125 2855
Tidewater, Dennis 18, sw se sw 28-4s-14w 48 2840
Beacon 1, ne se ne 5-5s-14w..... 26 2857
Ennis 23, se sw ne 33-4s-14w.... 115 2848
Sun, Greathouse 27, nw sw se 33-4s-14w 84 2851
Greathouse 28, ne nw sw 33-4s-14w 90 2730
Greathouse 30, nw se sw 33-4s-14w 90 2733
Sallee Bros., Doerr et al 1, ne ne se 21-4s-9e ..... • 3307
McBride, Lawrence 1, se sw nw 24-6s-8e ..... • 3157
Carter, Aud 1, se se sw 35-6s-9e.. • 3087
Williamson County—
Seiser Oil, U. S. Coal & Coke 1, nw nw nw nw 15-8s-2e ..... • 2772

INPUT WELLS

Fayette County—
Carter, Miller 1-6, nw nw nw se 1-8n-3e 1614
Baker 35-8, sw sw ne se 35-9n-3e ... 1660
St. Pierre 1-2, sw sw sw se 36-9n-3e 1668

OLD WELLS DEEPENED

Hamilton County—
Shell, Porter 8, sw sw se 34-5s-6e (otd 2960) 190 3080
Cameron Bros., Wilson 3, ne sw ne 6-6s-7e (otd 2725) 375 3022
Marion County—
Magnolia, Young 66, nw nw nw sw 21-2n-2e (otd 3475) 32 4690
Texas, Fossieck 15, ne ne sw 29-2n-2e (otd 3471) 96 4650
Maxwell 8, nw ne ne 32-2n-2e (otd 3415) 24 4647
White County—
Pure, Patter 5, nw sw nw 9-4s-14w (otd 2725) 101 2820

Indiana

Daviess County—
B. L. Norris et al, Hunter 1, sw se nw 4-2n-5w ..... • 600
Gibson County—
Hall Edwards, Maier 31, se nw ne 14-3s-14w 150 2525
Continental, Keck 24, nw ne se 27-3s-14w 142 2885
Tidewater Assoc., Doll 8, w½ sw nw se 33-3s-14w 1000 2895
Greene County—
Midwest, Good 1, w½ ne nw 21-6n-7w ..... • 2331
Posey County—
Dirickson, Utley 1, ne sw ne 26-6s-13w 65 2452
Basin Dr. & Reilly, Oakland City 2, sw sw ne 16-8s-14w..... • 2715
Spencer County—
VonBerg, Frazier 1, nw ne se ne 1-6s-4w ..... • 658
Gulf, Snowden 2, c e½ se sw 3-7s-6w 17 928
Sullivan County—
Boyce et al, Kelly 1, sw sw ne 10-8n-11w ..... • 2776

Kansas

Barber County—
Olson Oil Co., Williams 1, c se sw 19-31-11w ..... • 4363
Barton County—
Skelly, Esfeld 4, c w½ sw ne 30-16-11w ..... • 3207
R. E. Day et al, Feltes 3, c s½ ne ne 14-16-12w 3000 3337
Transwestern, Kultgen 1, c s½ se sw 16-16-12w ..... • 3360
Shell, Bitter "B" 15, nwc se 6-16-13w 3000 3358
Wakefield et al, Kraft 1, e e½ ne nw 2-17-11w ..... • 3437
Derby, Frees 6 nw se ne 3-17-11w 447 3383
Champlin, Burmeister 2, c w½ ne nw 13-17-11w 1320 3359
Spencer & Yarnell, Patzner "A" 10, ne sw se 36-17-11w 164 3292
Virginia Dr. Co., Selle 1, c n½ sw sw 17-20-11w 3000 3290
Butler County—
Wilson Oil Co., Wilson 2, ne nw ne 12-25-3e 35 2705
Mohawk, Doughty 6, c se se 6-27-6e 50 3102
Dunne Bros., Seward 1, ne nw nw 7-27-7e 20 2189
Simpson, Lessman 2, ne nw nw 20-29-4e 7 1920
Cowley County—
Ryan Cons., Kennedy 2, se ne sw 12-30-5e 1205 2855
Leader Oil Co. et al, Moon 7, ne sw sw 16-32-5e 922 3091
Elk County—
S. L. Thompson, Smith 1, ne sw ne 20-28-11e ..... • 1235
Ellis County—
Champlin, Hadley "D" 11, c n½ sw sw 17-11-17w ..... • 3750
Central et al, Carmichael 1, c s½ sw ne 11-11-18w 3000 3425
Phillips, Hugh 1, c e½ se ne 14-11-18w 3000 3361
Graham County—
Palm-King Oil Co. et al, Steinmetz 1, sec ne 6-7-21w ..... • 3856
Greenwood County—
N. C. Dunn, Dawson 2, nwc se 22-26-13e 20 1460
Blankenship, Westbrook 3, swc ne 17-28-11e (pb 1218½) 38 1223
Marion County—
Mendenhall & Ryan et al, Bucher 2, sw nw ne 28-17-4e 280 2426
Rex & Morris et al, Hauser 2, c w½ sw ne 33-17-4e 542 2404
Lauck & Moncrief, Miller 1, se nw 21-21-4e ..... • 2466
Pawnee County—
Stanolind & Amerada, Gates 3, c e½ se sw 13-20-16w 3000 3858
Pratt County—
Aladdin, Reschke 1, c w½ sw sw 18-27-13w ..... • 4598
Rice County—
Sharon Dr. Co., Nevius 2, ne sw ne 21-19-10w 21 3343
Sunray, McGlynn 1, c e½ ne sw 21-20-9w ..... • 3317
Stormfeldt & Hyde, Specht "B" 1, c n½ se sw 16-20-10w 370 3140
Brunson-Bartlett, State River Bed 1, nw ne sw nw 19-20-10w..... 14 3266
Rooks County—
Sharon Dr. Co., Maddy 1, c e½ ne nw 36-8-18w (pb 3425) 105 3528
Russell County—
Texas, Goodheart 1, c w½ sw se 25-14-13w 2520 3119
Magnolia, Rogg 3, c n½ sw ne 27-14-13w 354 2924
Skelly, Opdycke 16, c s½ se nw 32-4-13w 141 2953
Palmer Oil Corp., Neidenthal 2, c e½ sw se 23-14-15w 376 3170
Neidenthal 3, c w½ se se 23-14-15w 1051 3173
John Lindos et al, Boxberger 2, c s½ ne sw 24-14-15w 723 3212
Cities Service, Rogg "D" 3, cnl ne sw ne 9-15-13w (pb 3277)..... 507 3350
Mai "A" 5, cel ne sw sw 24-15-14w 1321 3345
R. H. Shields et al, Rogg 5, csl se ne nw 9-15-13w 1157 3030
Jones & Mullen, Crowell 1, c s½ se se 20-15-15w ..... • 3387
Sedgwick County—
Carlock et al, Whitson 1, c w½ nw sw 25-25-2e ..... • 3367
Stafford County—
Atlantic, Jung 1, c w½ sw nw -21-13w ..... • 3584
Bodine Dr. Co., Willcut 2, c w½ ne se 4-21-13w 1074 3410

Kentucky

Calloway County—
McKell et al, Adair 1, c wl ne sw 20-c-12 ..... • 2808
Davies County—
Master Oil Co., Baird 4, 20-n-28.... 25 1493
Farmer, Brown 3, ne se nw sw 12-n-29 ..... 20 1374
Cane Run, Magan 1, e½ se nw nw 9-n-31 ..... • 960
Grayson County—
Sun, Woods 2, w½ ne nw sw 25-m-38 ..... • 1568
Hancock County—
Sands Pet., Brown 1, se se se ne 2-O-34 ..... • 584
Henderson County—
Mace et al, Rice 1, s½ sw sw sw 14-Q-28 ..... • 2180
Ohio County—
DeHart et al, Bartlett 10, se sw sw sw 13-M-32 ..... • 480
Harman et al, Tuttle 8, e½ sw nw nw 3-M-35 ..... 2 309

South Louisiana

Acadia Parish (South Crowley)—
Humble, Nockton 1 .....¶0.5 & 18 8920
Acadia Parish (Richie)—
Baker et al, Baker 1..... • 4010
Grubb & Hawkins, Ruppert 1.... 113 3499
Acadia Parish (Jennings)—
Fort City Oil Co., Jennings 29.... 100 3000
Calcasieu Parish (Sulphur Mines)—
Union Sulphur, Fee 878..... 102 7219
Iberia Parish (Little Bayou)—
Wm. Helis, Bollock 9..... 294 6145
Iberville Parish (Bayou Blue)—
Union Sulphur, Schwing 1 ..... • 5938
Iberville Parish (St. Gabriel)—
Shell, Gueymard 1 ..... 210 9075
Jefferson Parish (Barataria)—
California Co., Fleming C-7..... 349 7655
Jefferson Parish (LaFitte)—
Texas Co., Kerner 2 ..... 235 10,815
La Fourche Parish (Golden Meadow)—
Bering Oil Co., LaFourche Realty Co. 7 ..... 158 5490
Gravois 1 ..... 194 5474
La Fourche Parish (Raceland)—
Harry Fotiades, Kilpatrick-Barrios 1 ..... • 9585
Plaquemines Parish (Grand Bay)—
Gulf, State 15 ..... 519 8754
St. Martin Parish (Anse La Butte)—
Harry Fotiades, Roy 1 ..... • 6892
Stanolind, Rycade-Stanolind Fee 1 264 6426
St. Martin Parish (Bayou Bouillon)—
Superior, Rycade 7 ..... • 6444
St. Martin Parish (West Lake Verrett)—
Shell, Burdin 2 ..... 383 8895
Breaux Lbr. Co. A-3..... 130 2369
St. Mary Parish (Wildcat)—
Helis, Avoca 1 ..... • 11,029
St. Mary Parish (Bateman Lake)—
Texas Co., Woodward et al 1.....¶3.4 11,114
Terrebonne Parish (Wildcat)—
Barnsdall & Phillips, State 1..... • 11,020

North Louisiana

Bienville Parish (Bisteneau)—
Union, Cook Unit 1, 14-16n-10w..¶50.0 5235
Bossier Parish (Sligo)—
Union, Herold A-2, 18-17n-12w....¶62.5 5334
Triangle Dr. Co., Smith 2, 14-17n-12w 100 3125
Bossier Parish (Bellevue)—
George Stevens, Bellevue Land Co. 1, 27-20n-11w ..... • 3005
Caddo Parish (Pine Island)—
Davis & Hart, Muslow 7, 22-21n-15w 35 1526
Gulf, Hogue 1, 17-20n-15w .....¶0.25 843
L. L. Lanier, Spell 3, 12-20n-16w. 22 1560
Magnolia, Herndon 16, 22-21n-15w. 10 1611
Texas, Herndon 7, 22-21n-15w..... 5 1625
Herndon 11, 14-21-15w 30 1490
A. R. Hancock, Helpman 11, 16-21n-15w ..... • 1560
Weaver-Perry Oil Co., Pardue 8, 33-21n-15w 25 1581
La Salle Parish (Nebo-Jena)—
H. L. Hunt, Goodpine A-23, 10-7n-3e 200 3816
Goodpine A-24, 17-7n-3e ..... • 3733
La Salle Parish (Olla)—
Placid Oil Co., La. Central Lbr. Co. 88, 26-10n-2e 10 2405
La. Cent. Lbr. Co. 89, 36-10n-2e 145 2481
La Salle Parish (Wildcat)—
H. R. Scivally et al, La. Delta 1, 12-6n-4e 360 5015
Nachitoches Parish (Wildcat)—
Clark & Cowden, Pierson 1, 27-6n-6w • 4165
Sabine Parish (Wildcat)—
K. E. Merren, Nona Mills 1, 28-3n-12w ..... • 4040

Michigan

Allegan County—
Muskegon Oil Corp., Poudigel 2, nw sw se 29-4n-12w 13 1642
H. C. Nelson, Hulst 1, sw nw nw 12-4n-14w ..... • 1605
H. R. Fothergill, Wabeke 3, ne sw sw 11-4n-13w 25 1596
Arenac County—
Don Rayburn, Fox 1, ne ne se 21-19n-3e 45 4300
Clare County—
Union Dr. Co., O'Brien 1, c s sw se 5-20n-5w ..... • 3852
Sun, Thayer 3, e sw sw 29-20n-6w 650 3786
Isabella County—
L. & S. Dr. Co., Winesburgh 1, se sw se 19-14n-5w .....¶3.0 1333
Belvidere Oil Co., Pease 1, se se nw 21-13n-5w .....¶1.25 1270
Kent County—
Southwest Dev. Co., Gould 1, ne sw ne 20-5n-12w ..... • 1804
Fisher-McCall, Young 1, ne ne sw 5-6n-12w ..... • 1812
Midland County—
Pure, Narmore 41, sw ne ne 16-13n-1w 125 3403
Ottawa County—
W. L. McClanahan, Kickover 1, se se nw 32-5n-13w..... • 1641

United States Well Completions—*Continued*

Company, Well and Location — Init. Prod. Bbls. — Depth

J. C. Newell, Rapp 3, ne se sw 23-7n-13w 350 1876
Louis Rose, Sutter 1, sw se se 28-7n-13w 16 1865
Saginaw County—
Hogan Bros., Watson 1, se se se 13-11n-1e ..... • 3156
Van Buren County—
Fortney Oil Co., Pullin 1, sw sw nw 1-1s-14w 200 1284
Thompson & Fitchett, Andrews 2, se se nw 7-1s-14w 10 1195
Clapsaddle & Harris, Schock 1, se nw sw 10-1s-14w 10 1309
Lang & Lewis, Kent 1, ne ne sw 16-1s-14w ..... • 1284
Smith Pet. Co., Carlson 1, se sw nw 21-1s-16w ..... • 1026

Mississippi

Yazoo County (Tinsley Dome)—
C. M. Beckett, Hart 2, 36-10n-3w. 960 4965
J. P. Evans, Johnson 4, 31-10n-2w. 1200 5040
E. C. Johnson, Robertson D-1, 20-10n-2w 460 4963
Sylvan Prod. Co., Logan 1, 36-10n-3w 370 5045
Union Prod. Co., N. Berry 3, 25-10n-3w 600 4627
Perry A-3, 26-10n-3w 375 4694

New Mexico

Eddy County—
Herbert Aid et al, State-Leonard 2, nwc 16-17s-29e (pb 2450)..... 10 3080
Lea County (Skelly)—
Skelly Oil, Johnson 1, c sw nw 20-23s-37e 36 3669

New York

Allegany County—
Vosburg Oil Co., Green farm, Bolivar 5 1267
Trio Oil Co., Durham farm, Bolivar 10 1367
Floyd Reeland et al, Rowley farm, Bolivar 16 1223
Brothers Oil Co., Crandall farm, Bolivar 5 1357
M. J. Crowley Est., Bank farm, Bolivar 4 1346
Carl Oil Co., Robinson farm, Scio 6 1087
Porge Oil Co., Anderson farm, Alma 6 1379
Bradley Prod. Corp., Duke farm, Alma 5 1431
The Otsquago Corp., Pike farm, Alma 7 1378
Brown & McEnroe, Barnes farm, Alma 6 1273
E. Coats & Emma Gleason, Updyke farm, Andover 4 1279
Hopkins, Short Bros., et al, Clark farm, Independence 6 1256
South Hill Oil Co., Harrington farm, Wellsville 5 1339
Bradley, Carter & Streeter, Davidson farm, Wirt 5 1278
Otto Oil Co., Bartlett farm, Bolivar 6 1267
Merle Coats Est., Coats farm, Wirt 6 1262
Hughes Brcs., Fee, Genesee..... 6 1342

WATER INTAKE WELLS

Allegany County—
Ebenezer Oil Co., Herrick farm, Alma 1352
V. V. V. Franchot, Murphy farm, Bolivar 1426
Walter M. McEnroe, Hoover farm, Bolivar 1533
Gillingan & Dermitt, Gilligan farm, Bolivar 1063
R. B. Moore No. 6, Daniels farm, Bolivar 1392
Messer Oil Corp., Miles farm, Bolivar 1442
Curt Oil Co., Williams farm, Alma ... 1341
Bradley Bros. Corp., Withey farm, Bolivar 1369
J. P. Herrick No. 2, Howe farm, Bolivar 1384

Ohio

Athens County—
Williams et al, Leslie 4 ..... • 874
Belmont County—
Wiser Oil Co., Walker 1 ..... • 1617
Gallia County—
D. T. Orndoff, Jones 1 .....¶0.06 1684
Jefferson County—
John M. Elliott Oil Co., Lee 1 .. • 1430
Knox County—
Upham Gas, Smith 1 ..... • 2945
Licking County—
Copper Head O. & G., Thompson 3 9 598
Lacknett et al, Fory 2 .....¶0.33 2581
C. A. Davis, Wahl 1 .....¶0.15 2430
Everette Co., Mound Mortgage 5..¶0.04 2408
Hoover Bros., Hays 1 ..... • 2411
Meigs County—
Downie et al, Ward 1 .....¶0.27 678
H. M. Nelson, Kincade 1 ..... • 848
Morgan County—
W. S. Harris, Kinsey 1 ..... • 1064
Noble County—
J. T. Watson, Yoho 1 .....¶0.05 1475
John Cisler, Marquis 1 ..... • 868
Perry County—
Ohio Fuel Gas, Snider 1 .....¶0.3 3107
Stark County—
Lyons et al, Fasnacht 2 .....¶0.6 4382
Tuscarawas County—
Nat. Gas. Co., of W. Va., McFeeders 2 .....¶0.08 4921
Washington County—
Reese Ward, Still 1 .....¶0.05 1930
Otto Heldman, Rapp 2 .....¶0.05 1398
Wayne County—
Peaker & Nohe, Wood 1 .....¶0.32 779

Oklahoma

Atoka County—
Kirksey, Basket Bros. 1, ne sw se se 7-3s-10e ..... • 955
Bryan County—
Pure, Little (209) 1, sw se sw 27-5s-7e 984 5081
Caddo County—
Magnolia, Ginrich 5, c s½ nw nw 6-5n-9w (pb 3321)..... 22 3517
Carter County—
Anderson & Kaufman, Dillard 1, sw nw se 10-4s-2w (pb 2230).... 38 2283
Samedan Oil Co., Williams, ne ne se 19-4s-2w ..... • 2595
Cox & Hamon, Stone 1, nw ne nw nw 20-4s-2w 110 2101
Stone 2, ne ne sw nw 20-4s-2w.. 900 2074
Dixon & Lausen, Woodsworth 7, sw sw ne nw 20-4s-2w 675 2182
Gibson & Jennings, Griffin 7, ne sw ne se 20-4s-2w 80 2148
Herrell 1-A, ne nw sw nw 20-4s-2w 1070 2062
Walter Neustadt, Choate (20) 8, sw sw nw nw 20-4s-2w 696 2150
Choate (20) 9, nw sw nw nw 20-4s-2w 624 2103
Comanche County—
Achcraft & Palmer, School Land 11, nw ne se se 20-2n-10w..... • 900
Creek County—
Shell, McVey 1, sec 30-15n-7e..... 46 4128
Linihan 3, sec ne 31-15n-7e.... 253 4102
Sinclair-Prairie, Dacon 41, c w½ ne se 16-17n-7e..... 10 2805
Marshall Strozier, House 2, sw ne se 22-17n-11e (pb 2175) 10 2567
L. B. Jackson, Donnenberg 1, swc ne 29-17n-11e 10 1836
Abe Pepis, Lee 14, sw ne 12-18n-11e 8 1724
R. L. Reynolds, Gash 2, se ne se sw 33-18n-11e ..... • 1592
Harry Griger, Big Pond 26, c sw 21-18n-12e 8 1630
Garvin County—
Kerlyn, Butterly 2, nw ne se 22-1n-1e ..... • 3107
Hughes County—
B. L. Crowell et al, Hill 1-A, se swc ne 13-9n-9e ..... • 3382
Arrow Dr. Co. et al, Granneman 1, sw nw se 23-9n-11e (pb 2336)...¶3.0 3454
Jackson County—
Aloma Oil Co., Robertson 6, nw sw se 15-1n-20w 35 1404
Lincoln County—
Willis, Provaznik "C" 1, sec sw 33-12n-6e 30 3310
Logan County—
Continental et al, Basserman 1, se ne se 22-15n-3w ..... • 6383
Okfuskee County—
W. C. McBride, McMahon 1, ne se ne 15-11n-10e 150 3179
Oklahoma County—
I.T.I.O, Trosper Park 14, sw ne sw 13-11n-3w 86 4023
Harper & Turner, Mulligan 1, se ne nw nw 35-12n-3w 104 6543
Okmulgee County—
Sam J. Handler, Fife 10, sw nwc se 25-15n-13e (pb 1729)..... 8 1731
Osage County—
A. R. Edmonson, 2, nw nwc ne 22-21n-12e 30 1304
Skelly & Moore, 5, sw ne sw 35-22n-8e 31 2515
Forty-Five Oil Co., 42, ne se nw 4-25n-12e 33 1646
Blackwell, No. 10, sw ne nw 10-28n-11e ..... • 956
No. 13, c sw nw 10-28n-11e (pb 984) 40 986
Pawnee County—
Johnson O. & R. Co., Mann 13, nw ne sw 23-20n-7e .....¶3.0 2623
Payne County—
Mid-Continent et al, Columbia-Wetzell 8, sw nec sw 18-18n-2e....2532 4617
Pontotoc County—
Huddleston, Busby 1-A, nec nw 34-5n-8e ..... • 2550
Pottawatomie County—
Gulf, Johnson 2, ne nw ne 7-7n-4e 313 3944
Commercial Dr. Co., Welfelt 1, sw nw nw 34-8n-4e ..... • 3925
Seminole County—
Rudivan, Jackson 1, nec se 25-7n-7e • 2188
Mid-Continent, Ferguson 6, nwc 19-7n-8e 175 1511
Atlantic, Johnson 1, nwc sw 29-8n-7e ..... • 4333
Delaney, Harjo 1-A, sw ne se nw 30-8n-7e 522 4170
Tillman County—
I.T.I.O., Dickey 9, cwl nw ne nw 1-3s-19w 60 3097
Tulsa County—
Cook et al, Shaw 1-A, ne sec sw 14-17n-12e ..... • 1883
O. R. Howard, Yargee 11, csl sw sw 14-19n-12e 1 1321
OLD WELLS DEEPENED
Hughes County—
Amerada, Williams 1, nec se 36-9n-8e (otd 4024) 29 4027
Jackson County—
Burnham Oil Co., Sumner 5, sw ne se 6-1s-19w (otd 2588) 25 2600
SALT WATER DISPOSAL WELL
Noble County—
Phillips Pet. et al, Billings Unit 74, c ne ne nw 28-23n-2w (otd 4366) ... 4512

Pennsylvania

BRADFORD DISTRICT

Messer Oil Corp. Loop ..... 1½ ....
J. P. Kervin, South Penn Oil Co.. 1 ....
Kendall Ref. Co., Fee, 2 wells .... 2 ....
Forest Oil Corp., 2 wells ..... 2 ....
Forest Pet. Corp. ..... 1 ....
Niagara Oil Corp., 6 wells ..... 6 ....
Bradford Tr. Co., 21 wells ..... 21 ....
D. Y. M. Corp., Bing 466 ..... 2 ....
Andrus, Lens & Daggett, Newton. 1 ....

Water Intake Wells

N. V. V. Franchot, Campbell ....
Forest Oil Corp., 2 wells ....
Forest Pet. Corp., 2 wells ....
Niagara Oil Corp., 2 wells ....
Grant & Mohan Oil Co., No. 3 Bing 486-487 ....

NEW YORK-PENN GAS AREA

Hill & McKinney, Harback, temp.. • ....

MIDDLE DISTRICT

United Nat. Gas, Korb & Beary .. ¶ ....
Edna A. Burns, McElree ..... 2 ....
McCool Bros., Lot 80 ..... 2 ....
Titusville Trust Co. & Fleming, Lot 3192 ..... ¾ ....

Water Intake Wells

Shawnor Oil Co., Lot 106 ....

BUTLER-ARMSTRONG DISTRICT

Pfeifer & Ethridge, Beahm ..... 1 ....
Graff-Kittanning Clay Prod. Co., Graff ..... ¶ ....

SOUTHWEST DISTRICT

Armstrong County—
Equitable Gas, Carroll 3 .....¶0.39 3612
Clarion County—
Frank Shreffler et al, Gourley 1.¶0.08 2115
Greene County—
Lee Wise et al, Hixenbaugh 1....¶0.38 2259
Westmoreland County—
Peoples Nat. Gas, Elwood 1 .....¶0.04 3875

North Texas

Archer County (Hull-Silk)—
Barnes & Traugh, Carson 5-B..... 584 4363
R. P. Dorian et al, Wilson 3..... 576 3805
Archer County—
B. F. & H. Oil Co., Richardson 8 6 1446
Archer County (Wildcats)—
Bridwell Oil Co., Bridwell 2-D.... • 918
McKanna, Inc., Snider 1..... • 875
D. L. Wolf et al, Young 2..... • 1560
Clay County (Burns-Browning)—
L. T. Burns et al, Southerland 1 (pb 4490), new pay..... 485 5386
Clay County—
Akin-Dimock-Costley, Taylor 3-A-E • 270
Geo. W. Graham et al, Hansard 5 • 1360
Geo. Golden et al, Enyart 4..... • 350
Perkins & Cullum, Taylor 5-A.... • 1330
Stayton Oil Co., McGregor 5..... 55 1163
McGregor 6 ..... 63 1167
Cooke County—
High Point Oil Co., Bertram 1.... • 1129
Humble, Hellman 13..... 75 1319
Hellman 14 ..... 90 1260
Kingery Bros. Dr. Co., Trubenbach 4 ..... 138 1624
Metzner & McKee, Henscheid 6.... 18 802
Thos. E. Nix et al, Flusche 1.... 39 790
Trammter Pet. Corp., Trubenbach 1 • 1854
Whitfield-Pearson-Grimes, Sicking 13 75 1295
Cooke County (Walnut Bend)—
Sinclair Prairie, Cox 4-B (pb 4689) 177 4926
Jack County—
Harper & Knappenberger, Shown 1.1205 3066
Montague County (Benton Holmes)—
Texas Co., Custers 2..... 312 3487

[*Continued on next page*]

United States Well Completions—*Continued*

NORTH TEXAS—Continued

Company, Well and Location	Init. Prod. Bbls.	Depth
Montague County—		
Claymont Oil Co., Bouldin 9	10	821
Seitz-Comegys-Seitz, Roach 8-B	165	2143
Throckmorton County (Wildcat)—		
A. L. Wasson et al, Erwin 1	*	895
Throckmorton County—		
Burk Roy. Co., Housley 4	5	701
Wichita County (K-M-A)—		
Buffalo Oil Co., Ferguson 17	1008	3842
H. D. Egger et al, Preston 6-E (pb 3935)	480	4507
Retsal Dr. Co., Martin 2	624	3850
Tide Water et al, Pettit 1-E	†	4059
Wichita County—		
Akin-Dimock-Costley, Oates 3-B	55	1327
Oates 4-B	45	1298
Horton 1-A	*	1603
Ted A. Norwood et al, Lisser 2	15	1305
Wilbarger County—		
Summit Oil Co., Waggoner Est. 5	22	1700
Wilbarger County (Wildcat)—		
J. B. H. Henderson et al, Waggoner Est. 1	*	2102
Young County (Wildcats)—		
Ben H. Rankin et al, Logan 1	8	4507
W. R. Stafford et al, Nicholson 1	*	967
Young County—		
Bohner & Watson, Prideaux 15	*	594
L. T. Burns et al, Larimore 6	50	875
Leberman 2	59	889
Leberman 3	*	952
Carey & Carey, Vaughn 5	456	2512
Stanley A. Thompson, Vaughn 2-A	580	4335
Henry Zweifel, Tr., Sewell 4-A	562	4275

OLD WELL DEEPENED

Wilbarger County (Electra)—		
Magnolia, H&TC-Fee 65 (otd 779), new pay	167	3008

West Texas

Andrews County (Means)—		
Humble, Means 85	203	4524
Cochran County (Slaughter)—		
Devonian Oil Co. et al, Duggan 7-A-10	894	4990
Duggan 6-B-3	643	5082
Geo. P. Livermore, Inc., Boyd-Texaco 2	943	5048
Mid-Continent Pet. Corp., Mallet 4-A	511	5064
Crane County (Wildcat)—		
Gulf, University 1-F	*	10,658
Crane County (Sand Hills)—		
Humble & Sun, Tubb 5-C	254	4390
Magnolia, Lea 2 (pb 2875 ft)	¶6.6	3117
Crockett County (Soma-Noelke)—		
Mudge Oil Co., Bouscaren 1	3288	1314
Noelke 1	6960	1144
Noelke 1-B	4824	1244
Noelke 2-B	2328	1270
Ector County (Foster)—		
C. P. Baker-D. E. Reading, Moss 1	476	4232
Forest Development Corp., Moss 9-H	248	4325
I.T.I.O. Co., Johnson 3-E	415	4160
Geo. P. Livermore, Inc., Johnson-Ohio 1-27	949	4077
Ector County (Goldsmith)—		
American Maracaibo Co., Scharbauer 4-8	789	4178
Ector County (North Goldsmith)—		
Magnolia, Cowden 3	37	4420
Ector County (North Cowden)—		
Stanolind-M. J. Delaney, Smith 2-C	756	4402
Gaines County (Seminole)—		
Amerada, Turlin 8	894	5305
Humble, Mathews 6	591	5330
Hockley County (Slaughter)—		
Honolulu Oil Corp., Slaughter 5-A-5	1453	4990
Slaughter 13-B-49	1278	5015
Magnolia, Graham 1-B	375	5004
Mallet 3-E	976	5000
Sid Richardson et al, Slaughter 24	1158	4989
Tide Water, Slaughter 1	769	4970
Western States Gaso. Corp., Mallet 4	1029	5011
Whittington Bros., Barry 2	1043	5000
Mitchell County (Northwest)—		
C. L. Echols et al, Crawford 1-B	416	1713
Pecos County (Tobarg)—		
Cardinal Oil Co., Tippett-Kirby 65-E	9	440
Pecos County (Shearer)—		
Geo. Davis & M. L. White, Shearer-Gulf 1-J	2	1929
Scurry County (Sharon)—		
R-Y. Oil Co., Treavy 2	158	2456
Terrell County (Wildcat)—		
E. M. Thomason et al, Bates 3	*	1423
Terry County (Slaughter)—		
Gulf, Mallet 6	1539	5025
Ward County—		
Gulf, Hutchings 155	388	3075
Hutchings 157	748	3110
T. E. Jamison-Chas. Pollard White 2	387	1944
Texas Cotton Industries 1-B	426	1897
Winkler County (Keystone)—		
Ralph Lowe et al, Campbell-Texaco 3	311	3340
Yoakum County (Wasson)—		
Aloco Oil Co., Walker-Texaco 9	85	5270
Denver Prod. & Ref. Co., Whittenburg 28	1071	5158
Humble, Bennett 17	412	5280
Bennett 18	326	5265
Mabee O. & G. Co., Willard 4-D	824	5195
T. P. Coal & Oil Co., Hearne 7	995	5255
Westex Oil Co., Corder-Shell 1	232	5025

East Texas

Joiner Area—		
Constantin & Co., Hale-Gray 5	100	3610
Thompson-Pollard 6 (7.38-ac)	100	3610
Kilgore Area—		
O. R. Cooper et al, Post Oak Baptist Ch 1	2000	3578
Houston Oil Co., Hughey 8-A (44-ac)	2200	3493
Kirby Pet. Co., Reddic 18	240	3590
Shell, Willoughby 35 (57.7-ac)	2500	3600
Willoughby 36 (57.7-ac)	2500	3603
Willoughby 37 (57.7-ac)	2500	3604
Titan Oil Co., Dickson 6 (20-ac)	240	3590
Longview Area—		
L. G. & S. Oil Co., McQueen 11-C	960	3635
Anderson County (Wildcat)—		
B. T. Royalties Co., Coleman 1	*	5507
Falls County (Wildcat)—		
Kelsey & Miller, Reed 1	*	2203
Franklin County (Talco)—		
Humble, Penn-Humble 25	462	4298
Talco Asph. & Ref. Co., Rutherford 9	330	4275
Freestone County (Wortham)—		
Barney Carter et al, Lytle 1	114	2940
Houston County (Wildcat)—		
O. W. Killam et al, Houston Co. Coal Co. 1	*	3080
Houston County (Navarro Crossing)—		
J. C. Cook-Geier Bros. & F. B. Jackson, Perrone-Shell 2	55	5875
Limestone County (Wildcat)—		
Zephyr Oil Co., Peeples 1-B	*	5350
McLennan County (Wildcat)—		
Chas. Mooney et al, Herblin 1	*	1690
Red River County (Wildcat)—		
Al Wooley et al, Nelson 1	*	1145
Titus County (Talco)—		
Magnolia, Chapman 9	*	4403
Van Zandt County (Wildcat)—		
Hickok P&D Co.-Harry Reynolds, Brown 1	*	4761
Wood County (Wildcat)—		
Bracken Oil Co., McKnight-Rosen 1	*	5004
Ed. V. Parsons et al, Bellamy 1	*	5005
Wood County (Hawkins)—		
Humble, J. P. Chrisman 2 (151.8-ac)	384	4832
Kay 1 (330.31-ac)	150	4825
Shamburger 1-A (65-74-ac)	359	4891
H. H. Knox et al, Preddy 1	509	4835
McDonald & Smith, Caffey 1	457	4810

Texas Panhandle

Gray County—		
Cities Service, Hughey 22-B	48	3252
Coronado Oil Co., M. Davidson 2-A	107	3109
King Oil Co., Durkin-Rice 7	115	3285
Magnolia, Fee (Tr. 227) 44	166	3030
Shell, Hughey 7	121	3153
Skelly Oil, Schafer 122	361	3315
Stanolind, Merten 16	75	3334
Hutchinson County—		
Benonine Oil Co., Starnes 13	104	3208
Starnes 14	195	3192
Cree-Hoover et al, Harvey Sisters 13	130	3036
Danube Oil Co., Starnes 5	108	3145
Mid-States Oil Corp., Whittenburg 34-A	384	2788
Parton & Holt, Whittenburg 6	116	3040
Phillips Pet., Cockrell 61	125	3105
Cockrell 63	360	2929
Perkins et al 29	173	2870
Perkins et al 30	193	2880
Dave Rubin et al, Whittenburg 5	¶7.2	2890
Harry Stekoll et al, Whittenburg 6-K	175	2961

West Central Texas

Brown County—		
A. J. Stokes et al, Boyson 2	*	790
Callahan County—		
L. H. McCrea et al, Isenhower 2	*	262
Coleman County—		
Barney Carter et al, Dunman 1	*	3695
Robt. McKissick et al, Morris 10	†	2736
Coleman County (Wildcat)—		
R. D. Herring et al, Hughes 1	*	610
Jones County—		
Hedrick Oil Co., Akard 2-D	156	2137
Roeser-Pendleton, Hollis 2	55	2028
Jones County (Wildcats)—		
W. W. Fondren et al, Hodges 1 (pb 2960)	36	3070
Merry Bros.-Perini et al, Collins 1	*	2965
Shackelford County (Wildcats)—		
T. F. Morrow et al, Dyer 1	*	1220
O. C. Olson et al, Swenson 1	*	1608
Shackelford County—		
R. H. Roark et al, Elliott 4	*	851

Southwest Texas

CORPUS CHRISTI DISTRICT

Bee County (Wildcats)—		
Crown Central, Welder 1	*	5023
W. D. Walton, Tostenson 1	*	4993
Jackson County (La Ward)—		
Humble, Robbins 5	950	5226
Jackson County (Lolita)—		
Humble, L. Ranch Co. 4-B	950	5935
Luling O&G, Rogers 5	350	5942
Magnolia, Ward 10	450	5292
Jackson County (West Ranch)—		
Darby Pet. Corp., Turner 6	500	5772
Humble, Vanderbilt-State 8	650	5584
Jackson County (Wildcat)—		
Moore & Ahern, Mauritz 1	*	5244
Jim Wells County (Orange Grove)—		
Cities Service, Schunnemann 3	300	5114
Tide Water, Nathe 4	500	5110
Nueces County (Agua Dulce)—		
C. P. Burton, Purl 3	750	6460
H. H. Howell, Schulze 7	500	6580
Shield, Harvey 2	500	6453
Nueces County (Bentonville-King)—		
Southern Minerals, Walker 10	450	5646
Nueces County (S. Clara Driscoll)—		
Texas Conservative, Hule 4	500	5722
Nueces County (Minnie Bock)—		
E. A. Graham, Kampfhenkel 2	44	3820
Nueces County (Shield)—		
Shield, Lewis 2-B	500	6616
Nueces County (Stratton)—		
Corpus Christi, Wardner 18	¶200.0 & 400	6610
Southern Minerals, Stratton 18	450	6620
Refugio County (Tomoconnor)—		
Quintana, Williams 28-A	1500	5921
San Patricio County (Midway)—		
Gibson, Floerke 9	¶30.0	5355
Victoria County (Wildcat)—		
Mayo & Boyle, Smith 1	*	6023
Victoria County (Heyser)—		
Gulf, Traylor 55-B	500	5485

LAREDO DISTRICT

Duval County (Bridwell)—		
Forest, Rogers 5	250	4345
Duval County (Casa Blanca)—		
Texas, DCRC 42 (88)	39	1030
Duval County (Driscoll)—		
Continental, Driscoll 66-A	550	3395
Duval County (Wildcat)—		
Magnolia, A. Weil 1 (129)	*	3305
Jim Hogg County (Chaparosa)—		
Neuhaus et al, Gallagher 2, new sand	¶50.0	3071
Jim Hogg County (Colorado)—		
Humble, King-Colorado 19-B	450	2951
Jim Hogg County (Manila)—		
Magnolia, Merchants 49	25	2552
Starr County (LaReforma)—		
Collins & Co., Guerra 2	*	6238
Starr County (North Rincon)—		
Sun, Coates 4	600	4431
Starr County (Rincon)—		
Continental, Slick 46-B	150	4204
Slick 49-B	550	4323
Slick 95-B, 1 mi s extension	500	4433
Starr County (Rio Grande City)—		
Sioux, Goodrich & Wood	*	1404
Starr County (Sun)—		
Sun, Speer 7-B	650	4925
Webb County (Killam)—		
O. W. Killam, Garcia-Villareal 8	54	2060
Garcia-Villareal 9	70	2053
Webb County (Wildcat)—		
Harold K. Boysen, Bruni 1	†	3015
Zapata County (Wildcat)—		
W. H. Holland, Garza 1	*	1824
Martin-Baker, Vela 3	*	3119

SAN ANTONIO DISTRICT

Bexar County (Gas Ridge)—		
H. J. Bussa, Barker 10-B	2	405
Southwest Covel 15	2	425
Caldwell County (Tenney Creek)—		
F. W. Wiegand, Williams 1	45	2714

Texas Gulf Coast

Brazoria County (Hastings)—		
Stanolind Curkeet C-41	401	6138
Brazoria County (W. Columbia)—		
Gulf, Mays 10	300	5819
Chambers County (Barbers Hill)—		
Texas Gulf, McLean 2	537	4291
Wilburn 2	256	4949
Fort Bend County (Blue Ridge)—		
G. L. Lee, Luscher 2	100	3442
Fort Bend County (So. Thompson)—		
John Blaffer, Davis 3-B	99	5447
Harris County (Tomball)—		
Humble, Scherer 4	129	5604
Jefferson County (Fannett)—		
Gulf, Bordages 10	687	8337
Liberty County (Esperson)—		
General Crude, Davis 25	722	6240
Matagorda County (Bay City)—		
Skelly, Cobb B-22	121	8640
Orange County (Wildcat)—		
Jack Frazier & Hankamer, Brown 1	*	8511
Orange County (West Orange)—		
Intra-State, Harmon 1 (Workover)	50	5583
Orange Pet. Corp., Chesson 12	42	3401

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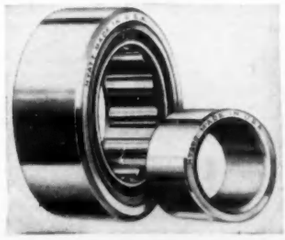

HYATT

ROLLER BEARINGS

QUIET

WILDCAT REPORT
New Starts and Completions

ARKANSAS
FIRST REPORT

St. Francis County—D. T. Hargraves' Peters 1, ne ne ne 21-4n-1w, rig.

Union County—A. V. Erwin et al, Strong 1, c sw ne 32-18-16, mat (Smackover lime test).

COMPLETION

Union County—Crescent Dr. Co., Burns 1, ne sw 13-18-17, 94 bbls 43.1-gr oil, 15/64-in ch, perf 5542-46 ft, old td 7607 ft.

CALIFORNIA
FIRST REPORTS

Fresno County—Seaboard's Hagood 1, sec 6-17-13, grad rds, Cantua Creek area. General Pet. Corp.'s Burrell 1, sec 2-17-18, lcn, Raisin City area. Shell's Santa Ana & Fresno Land 1-19, sec 19-15-18, lcn.

Los Angeles County—Tunnel Oil Co.'s Needham 1, sec 13-3-16, lcn, Newhall area. A. S. Johnston Dr. Co.'s 41, sec 29-4-13, lcn, Wilmington-Torrance area.

COMPLETIONS

Fresno County—Shell's Properties, Inc., 8-18, sec 18-15-18, td 6429 ft, pb 5045 ft, 3,030,000 ft gas, ¼-in ch, 24 bbls daily 36-gr oil, top Eocene 6396 ft, Raisin City area.

Kern County—White River Explor. Co.'s Konda 1, sec 25-24-27, abnd 2012 ft in Schist, top 1810 ft, Richgrove area. G. W. Stout's Stout 1, sec 35-22-27, abnd 1135 ft in Schist, top 750 ft, Terra Bella area.

Santa Barbara County—Texas Co.'s Bishop A-30, near 101 Highway & Glen Annie rd, abnd 3239 ft, light blow gas, mud and sw formation test, Elwood area.

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ILLINOIS
FIRST REPORTS

Bond County—Frank Bridges' Fiscus 1, nec sw 21-4n-1w, dr.

Coles County—O. G. Hayes' Anderson 1, sec ne 17-12n-7w, dr.

Christian County—Olson Dr. Co.'s Tex 1, c w½ sw ne 24-12n-1w, dr.

Crawford County—Lasalle Dr. Co. et al's Berryhill 1, nec nw 9-6n-13w, owdd.

Lawrence County—Tarleton's Reichert 1, nwc 34-1n-10w, dr.

Hamilton County—H. Weinert's Clark 1, c s½ sw ne 32-3s-5e, mim. D. P. Oil Co.'s Miller 1, c s½ sw ne 33-3s-5e, dr. Texas Co.'s McDonald 1, c nw ne se 11-6s-6e, rur. Texas Co.'s Shasteen 1, c e½ se sw 27-6s-6e, mim.

Washington County—Kingwood Oil Co.'s Brink 5, se ne ne 15-1s-1w, dr. Powell & Risk et al's Holle 1, nwc ne 15-1s-1w, dr.

White County—C. D. Neff et al's Green 1, c s½ se sw 8-4s-10e, dr.

COMPLETIONS

Clark County—Ray Brown et al's Redman 1, nwc sw 13-12n-14w, abnd 450 ft.

Clinton County—Johns Oil Co.'s Sanders 1, c s½ sw nw ne 17-3n-1w, abnd 1390 ft.

Crawford County—John Stelle's Davis 1, ne sw ne 23-7n-13w, abnd 2010 ft.

Fayette County—Whisenant & Trenchard's No. 25-D, c e½ nw se 16-8n-3e, new pay Loudon pool, Devonian 3063 ft, csg 3098 ft, td 3130 ft, dr plgs 3091 ft, 2000 bbls, 31-gr.

Franklin County—Shiek & Buerkle's Akin 1, sec 16-6s-4e, abnd 3089 ft.

Gallatin County—R. P. Martin's Clayton 1, c s½ se sw 16-9s-10e, abnd 2810 ft.

Jefferson County—Clark Nye et al's Sargent 1, swc nw 22-1s-2e, 1¼ mi s Dix pool, disc, Bethel sd 1931 ft, td 1938 ft, 66 bbls.

Lawrence County—C. E. Everts et al's Catt 1, sw se sw 23-2n-12w, 1 mi s Dennison pool, disc, pay 1387-97 ft, td 1397 ft, 25 bbls.

Marion County—Hudson-Mess et al's Young 1, c e½ sw sw sw 7-2n-2e, abnd 3597 ft. Paul Doran et al's Berbers 1, ne se ne 6-3n-1e, abnd 1514 ft.

McLean County—Funks-Grove Oil Co.'s Crawford 1, nwc 28-22n-1e, abnd 2115 ft.

Richland County—Paul Osborn, Case et al's Bowers 1, swc se 34-3n-14w, new pool, 10 mi se Olney, td 2129 ft, 240 bbls oil, 50 bbls water.

Wabash County—Snowden & McSweeney's Hayes 1, c s½ se nw se 3-1n-12w, abnd 2348 ft.

Washington County—H. J. Sherman et al's Goodner 1, ne sw sw 3-3s-2w, abnd 1399 ft.

Wayne County—Gordan-Muhlbach et al's Muhlbach 1, c w½ se sw 36-2n-8e, abnd 3120 ft.

White County—Sallee Bros. et al's Doerr 1, nec se 21-4s-9e, abnd 3307 ft.

Williamson County—Weiser Oil Co.'s U. S. Coal & Coke 1, nwc 15-8s-2e, abnd 2272 ft.

INDIANA
FIRST REPORTS

Posey County—C. A. Lynch's Hill 1, sec 7-4s-13w, dr.

Randolph County—David Culpepper's Lewis 1, sw sw se 9-19n-13e, lcn.

Spencer County—Chas. E. Dice's Stroble 1, ne ne se nw 5-5s-3w, lcn.

COMPLETIONS

Greene County—Midwest et al's Good 1, c w½ ne nw 21-6n-7w, abnd 2331 ft.

Posey County—T. B. Dirickson et al's Utley 1, ne sw ne 26-6s-13w, 3 mi ne Mt. Vernon, new pool, Weiler 2431 ft, td 2452 ft, 65 bbls oil, 47 bbls water.

Spencer County—B. A. Von Berg's Frazier 1, nw ne se ne 1-6s-4w, abnd 658 ft.

KANSAS
FIRST REPORTS

Barton County—Olson Oil Co.'s Ohmak 1, nec sw 15-17-13w, dr. Helmerich & Payne et al's Roth 1, c n½ nw ne 30-19-11w, dr.

Butler County—Adiar & Morton et al's Piper 1, ne nw ne 36-29-4e, mch.

Doniphan County—Plymate & Bornholdt et al's Elliott 1, c e½ se sw 31-3-20e, dr.

Ellis County—Derby Oil Co. et al's Dreiling 1, c w½ sw nw 34-13-17w, dr.

Graham County—Cities Service's Gordon 1, se ne nw 1-8-22w, mim.

Greenwood County—Roy Sharples et al's Linter 1, nw sw nw 20-27-11e, mch. Jack Ray et al's Mitchell 1, sw nw ne 29-27-12w, mch.

Norton County—Helmerich & Payne et al's Hewitt 1, c s½ se ne 11-4-21w, dr.

Rice County—Anderson-Prichard et al's Yeo 1, c s½ sw nw 29-20-10w, dr.

Russell County—Derby Oil Co. et al's Gernon 1, c w½ sw ne 20-13-15w, dr.

Smith County—B. B. Blair et al's Koch 1, sec 21-2-11w, rur.

COMPLETIONS

Ellsworth County—Ingling & Parker's State 1-A, C sw sw 29-15-8w, ¾-mi sw abnd Ellsworth oil pool, disc, Topeka 2194 ft, td 2555 ft, perf 33 holes 2475-94 ft, 1000 gals acid, 2,176,000 ft gas, 872-lb rock pres.

Greenwood County—C. H. Barker's Dove 1-A, se sw sw 12-28-11e, 1 mi e Severy area, abnd 1300 ft.

Pawnee County—Gulf's Seymore 1, c n½ sw nw 34-21-18w, 10 mi w Larned, Anhydrite 1130 ft, Ft. Riley 2255 ft, Tarkio 2990 ft, Lansing 3617 ft, base Kansas City 3925 ft, Cherty cong 4046 ft, reworked Viola 4066 ft, Simpson sd 4084 ft, Arbuckle 4108 ft, abnd 4133 ft.

Cowley County—Shell's Hall 1, nec 36-32-3e, 1 mi sw Winfield, Topeka 1478 ft, Layton sd 2586 ft, Kansas City 2687 ft, Bartlesville zone 3144, no sand, Mississippi 3257 ft, Kinderhook 3420 ft, Simpson 3587 ft, Arbuckle 3598 ft, abnd 3618 ft.

Russell County—Shell's Ruby 1, nwc ne 36-14-13w, 2 mi e Hall pool, disc, Anhydrite 605 ft, Ft. Riley 1530 ft, Florence 1625 ft, Topeka 2496 ft, Lansing 2815 ft, Sooy sd 3106 ft, Arbuckle 3120 ft, td 3219 ft, pb 2901 ft, 36 shots 2848-57 ft, 24 shots 2836-40 ft, 6000 gals acid, 2946 bbls. Central Pet. Co. & Kiowa Dr. Co.'s Waydziak 1, nwc 25-15-12w, 2¼ mi e Dubuque pool, Anhydrite 750 ft, Ft. Riley 1700 ft, Florence 1800 ft, Topeka 2690 ft, Lansing 3031 ft, cong 3317 ft, Arbuckle 3341 ft, abnd 3361 ft.

Stafford County—W. W. W. Dr. Co. et al's Wilson 1, c w½ nw nw 5-25-14w, 2½ mi nw Jordan pool, Anhydrite 890 ft, Arbuckle 3842 ft, abnd 3843 ft.

KENTUCKY
FIRST REPORTS

Grayson County—S. R. Berry et al's Blemmer Porter 1, 15-M-36, lcn.

Muhlenberg County—W. S. Tatus et al's Adkins 1, 11-I-27, lcn.

COMPLETIONS

Calloway County—McKeel et al's Adair 1, ne sw 20-C-12, abnd 2808 ft.

Grayson County—Sun et al's Woods 2, w½ ne nw sw 25-M-38, abnd 1568 ft.

NORTH LOUISIANA
FIRST REPORTS

Morehouse Parish—Union Prod. Co.'s Henkle 1, c nw sw 3-21n-7e, rig.

West Carroll Parish—Crow Dr. Co. et al's Bruce Lbr. Co. 1, c se 16-21n-9e, mat for 7000-ft test.

Bienville Parish—R. E. Collins, Madden 1, sw se 3-16n-8w, mat.

COMPLETIONS

La Salle Parish—H. R. Scivally, Carter Oil Co., Phillips Pet. Co., Louisiana Delta 1, c sw ne 12-6n-4e, top Cockfield 1540 ft, Cook Mt 2115 ft, Sparta 2260 ft, Cane River 2990 ft, perf 30 shots 4757-62 ft, showed oil and gas, later some sw, squeezed and perf again same level, gauged 15 bbls oil per hour ¼-in ch, 5015 ft.

Sabine Parish—K. E. Merren, Nona Mills 1, sw sw ne 28-3n-12w, abnd 4040 ft.

Natchitoches Parish—Clark & Cowden, Pierson 1, ne ne 27-6n-6w, abnd 4165 ft.

SOUTH LOUISIANA
FIRST REPORT

Terrebonne Parish—Barnsdall's Nelson Dev. Co. 3, Point Au Fer, 35-21s-11e, lcn.

COMPLETIONS

St. Mary Parish—Wm. Helis' Avoca 1, Avoca Island prospect, Sec. 46-16s-13w, abnd 11,029 ft.

Terrebonne Parish—Barnsdall - Phillips' State 1, Point Au Fer pros, Twp 21s-rge 11e, abnd 11,020 ft.

MICHIGAN
FIRST REPORT

Allegan County—Grimes & Sons' Schad 1, sw se sw 16-4n-11w, rig.

COMPLETIONS

Arenac County—Don Rayburn's Fox 1, ne ne se, 21-19n-3e, Dundee 2881 ft, Monroe 3290 ft, pay 4283 ft, td 4300 ft, after acid 45 bbls day pumping, new sand in North Adams field.

Clare County—Union Dr. & Prod. Company's O'Brien 1, c s sw se 5-20n-5w, Dundee 3771 ft, abnd 3852 ft.

Isabella County—Belvidere Oil Co.'s Pease 1, se se nw, 21-13n-5w, Stray 1249 ft, td 1270 ft, 1,250,000 ft gas, disc in new field.

Kent County—Southwest Dev. Co.'s Gould 1, ne sw ne 20-5n-12w, Traverse 1787 ft, abnd 1804 ft.

Ottawa County—W. L. McClanahan's Kickover 1, se se nw 32-5n-13w, Traverse 1589 ft, abnd 1641 ft.

Saginaw County—Hogan Bros.' Watson 1,

se se se 13-11n-1e, Dundee 3109 ft, abnd 3156 ft.

Van Buren County—Fortney Oil Co.'s Pullin 1, sw sw nw 1-1s-14w, Traverse 1281 ft, td 1284 ft, 200 bbls, discovery.

NEW MEXICO

FIRST REPORTS

De Baca County—Domain Oil Co.-R. D. Compton's Overton 1, nw nw 1-1n-20e, rur.

Eddy County—Martin Yates Jr. et al's Kelly 1, se nw se 2-18s-25e, sp.

Lea County — Culbertson & Irwin, Inc.'s Wingfield 1, c ne nw 4-19s-33e, mim.

NEBRASKA

FIRST REPORTS

Johnson County—Bodie & Hays et al's Eppley 1, nwc 17-4n-12e, rig.

Richardson County—Eckert-Powers et al's Albin Estate 1, sw nw sw 10-1n-14e, rur.

COMPLETION

Furnas County—Helmerich & Payne et al's Leising 1, c se 14-3n-23w, Dakota 900 ft, Morrison 1510 ft, Permian 1750 ft, Anhydrite 2020 ft, Topeka 3145 ft, Lansing 3280 ft, Granite Wash 3554 ft, Granite 3556 ft, abnd 3558 ft.

OKLAHOMA

FIRST REPORTS

Creek County—Zephyr Dr. Co.'s Sinclair 1, sec nw 34-17n-8e, dr.

Osage County—Keener O. & G. Co.'s Osage 1-A, swc 20-22n-9e, dr.

COMPLETIONS

Coal County—Ramsey Pet. Corp's Harryman 1, c w½ se nw 27-2n-9e, n ext Centrahoma pool, Atoka 1460 ft, Wapanucka sd 4158 ft, Wapanucka li 4164 ft, Union Valley 4685 ft, Cromwell zone 4801 ft, Cromwell sd 4831-46 ft, td 5002 ft, perf 262 shots 4790-4935 ft, 6,000,000 ft gas, 1170 lb. cp. Ramsey Pet. Corp.'s Harryman 1-A, nw se nw 27-2n-9e, new pay Centrahoma pool, perf McAlester sd 63 holes 1206-27 ft, 135 holes 1245-78 ft, 10,634,000 ft gas.

Kay County—Fred Summers et al's Rudolph 1, nec sw 27-29n-1w, otd 3648 ft, between Braman and N. Braman pools, gray dol 3660-62 ft, brown dol 3662-68 ft, brown sd 3668-70 ft, sdy li 3670-86 ft, gr sd 3686-93 ft, white sd 3693-3703 ft, slate 3703-04 ft, brown sd 3704-12 ft, blk sh 3712-28 ft, abnd 3845 ft.

Lincoln County—Portable Dr. Co.'s Schott 1, nwc se 31-17n-4e, between Spron and Agra pools, Hogshooter 3822 ft, Checkerboard 3132-53 ft, Cleveland 3165 ft, abnd 3268 ft.

Logan County—Big Chief Dr. Co. et al's Hirzel 1, ne nw se 18-17n-1w, 1 mi s Guthrie pool, L. Pawhuska 2325 ft, Deer Creek 2535 ft, Avant 3550 ft, Dewey 3670 ft, Perry Gas sd 3740 ft, Hogshooter 4180 ft, O. C. Checkerboard 4260 ft, C. Checkerboard 4460 ft, Big li 4747 ft, Oswego 4870 ft, Verdigras 4980 ft, Bartlesville 5127 ft, Mississippi 5137 ft, Woodford 5147 ft, Misener dol 5197 ft, Misener sd 5212 ft, Hunton 4233 ft, Sylvan 5260 ft, Viola 5353 ft, Dense 5405 ft, Dolomite 5434 ft, First Wilcox 5443 ft, Second Wilcox 5564 ft, abnd.

Okfuskee County—Sunray Oil Co.'s Brooks 1, nec nw 2-11n-10e, 1 mi s Blakely pool, Earlsboro 1735 ft, Bartlesville 2285 ft, Brown li 2435 ft, Wapanucka-Cromwell zone 3098 ft, Hunton 3678 ft, Sylvan 3751 ft, Viola 3844 ft, Dense 3865 ft, Dolomite 3873 ft, First Wilcox 3882 ft, Second Wilcox 3909 ft, abnd 3922 ft.

Pottawatomie County—J. E. Crosbie & Atlantic Ref. Co.'s School Land 1, c e½ ne sw 16-9n-4e, East Tecumseh pool disc, chert zone 1975-2010 ft, Belle City 2150, Hogshooter 2620 ft, sd 5785-80 ft, Brown ls 4240 ft, Mayes 4320 ft, Woodford 4322 ft, Hunton 4445 ft, Sylvan 4487 ft, Viola 4582 ft, Dense 4639 ft, Dolomite 4667 ft, First Wilcox 4714 ft, td 4722 ft, pb 4651½ ft, perf 41 holes 4580-4620 ft in Viola, 1000 gals acid, 383 bbls 34-gr, 1-in tbg ch, no water.

Seminole County—Sinclair-Prairie's Yahola 1, swc nw 28-10n-8e, new pay S. Cromwell pool, otd 4245 ft in Wilcox, dd to 4357 ft, pb 3600 ft, 87 bbls 39-gr, 450 bbls water, in Wapanucka-Cromwell zone, 3427-3444 ft. W. A. Delaney's Harjo 1-A, sw ne se nw 30-8n-7e, new pay North Little River pool, Hunton 4150 ft, td 4170 ft, 522 bbls.

SOUTHWEST TEXAS

FIRST REPORTS

Bastrop County—Wiegand Bros.' Carroll 1, Freeman Wilkinson sur, 3 mi w Red Rock, mi 2900-ft Edwards test.

Bexar County—J. Keet Lewis' Schroeder 1, Luke Bust sur, 11 mi e San Antonio, lcn 1500-ft test.

Duval County—Colmena Oil Co.'s D.C.R.C. 2-A, sur 52, 3500 ft w Colmena fld, sp 1500-ft test. J. H. Reynolds' Drummond 1-C, sur 392, 1 mi n Seven Sisters fld, sp.

Jackson County—E. B. Cox and J. L. Hamon's Surevec 1, William Menefee sur, 1½ mi sw West Ganado, lcn 6000-ft test.

Jim Hogg County—Guy A. Davis' Reuben Holbein 1-D, Reuben Holbein subd, Las Animas gr, 2784-ac lse, lcn 3150-ft test.

Jim Wells County—Ike Howeth's Adams 1, Adams sur 6, w Alfred fld, prep mi 5200-ft Vicksburg test.

Live Oak County—Fidelity O. & Roy. Co.'s Brown 1, Patrick Nevan sur, 5½ mi n Mathis, lcn 5000-ft test. D. C. Norcross' Shary 1, Dr. Charles F. Simmons subd, White Creek, lcn 2000-ft test.

McMullen County—Argo Oil Corp.'s Edrington Est. 1-I, AB&M sur 61, 14 mi w Clegg, mi for 3100-ft test.

Milam County—Hamman O. & Roy. Co.'s Rowers 1, 437-ac tr, B. F. Brewster sur, lcn 2300-ft test.

Nueces County—H. R. Smith and H. J. Mosser's Morgan 1, Montemayor and Sons "Casa Blanca gr," 5 mi se Orange Grove, dr 2000 ft on 7000-ft test.

Starr County—Fannie P. Fitch et al's Bass 1, Porcs, 75, 76 and 77, Juris of Carmargo, 2 mi n Los Almos pool, sd for orders 4718 ft. Sun's Hall 1, sur 99, 1262-ac lse, between North Rincon and Sun flds, lcn 6000-ft test.

Victoria County—L. N. Shaw's Fly 1, lot 1, blk 2, 63.6-ac lse, 2 mi n Victoria, lcn 5000-ft test.

COMPLETIONS

Bee County—Crown Cent. Pet. Corp.'s Welder 1, Planes sur, 5.6 mi e Beeville, abnd 5023 ft, top Vicksburg 3842 ft. W. D. Walton et al's Tostenson 1, Van Bibber sur, 1 mi w Normanna, abnd 4993 ft.

Caldwell County—F. W. Wiegand's Williams 1, Bowman sur, 2400 ft ne Tenney Creek fld, td 2714 ft, 45 bbls pump, 35.5-gr, no water, gor nominal, 5½-in 2237 ft, chalk 2457 ft, extends fld.

Duval County—Magnolia's Weil 1 (129), sur 129, 6 mi sw Freer, abnd 3305 ft.

Jackson County—Moore and Ahern's Mauritz 1, White Lge, 6 mi se Ganado, abnd 5249 ft.

Jim Hogg County — Neuhaus, Adams & Lucky's Gallagher 1, Pippin subd, El Randado gr, Chaparosa, td 3071 ft, 50,000,000 ft gas, perf 2783-91 ft, 5½-in 2924 ft, sand 2781-92 ft, new sand.

Starr County—J. L. Collins' Guerra 2, San Jose gr, 2 mi s La Reforma, abnd 6238 ft. Continental's Slick Est. 95-B, sur 222, 1 mi s Rincon fld, td 4433 ft, comp 176 bbls, 3/16-in ch, tp 450 lbs, cp 750 lbs, perf 3916-28 with 71, 6 at 4067 ft, extends field.

Victoria County—John W. Mayo and W. Stewart Boyle's Smith 1, Garcia sur, 6½ mi se Victoria, abnd 6023 ft.

Webb County—Harold K. Boysen's Bruni 1, sur 614, 6 mi sw Bruni, abnd 3015 ft.

Zapata County—W. H. Holland's Garza 1, Las Comitas gr, 30 mi s Mirando City, abnd 1824 ft. Martin-Baker's Vela 3, El Grullo gr, 25 mi ne Lopeno, abnd 3119 ft.

EAST TEXAS

FIRST REPORT

McLennan County—J. C. Kilgore et al's Huber 1, SEc of E. Goodnight sur, 2 mi se Ocee, dr 320 ft.

COMPLETIONS

Anderson County—B. T. Roy. Co.'s Coleman 1, NWc 170-ac tr, J. A. Box sur 10, elev 292 ft, Pecan chalk 4440-60 ft, Austin chalk 4987-5145 ft, Woodbine series 5245 ft, abnd 5507 ft.

Falls County—Kelsey & Miller's Reed 1, s corner 67-ac tr, A. de la Serda sur, Georgetown 1812-30 ft, Edwards 2150 ft, elev 399 ft, abnd 2204 ft.

Houston County — O. W. Killam et al's Houston Co. Coal Co. 1, SEc 64-ac tr, C. M. Goolsby sur, abnd 3080 ft.

Limestone County—Zephyr Oil Co.'s Peeples 1-B, SEc of 435-ac tr, Rozella Scott sur, Trinity test for Tehuacana area, elev 493 ft, abnd 5350 ft.

McLennan County—Chas. Mooney et al's Herblin 1, w cor 91-ac tr, T. J. Chambers sur, Georgetown lime 540 ft, first Glen Rose 1000 ft, abnd 1690 ft as fresh water well.

Red River County—Albert Wooley et al's Nelson 1, NWc 100-ac tr, J. Bowerman sur, Woodbine series 400 ft, Georgetown lime 710 ft, abnd 1145 ft.

Van Zandt County—Hickock & Harry Reynolds' Brown 1, nec 83-4-ac tr, Leander Smith sur, elev 466 ft, Pecan chall 2370-2625 ft, Austin chalk 3200 ft, Woodbine series and sand 4167 ft, abnd 4761 ft in shale.

Wood County—Bracken Oil Co.'s McKnight & Rosen 1, SEc 320-ac tr, W. R. James sur, ne Hawkins fld, elev 365 ft, Pecan 3156 ft, Austin chalk 4466-4562 ft, Woodbine series 4850 ft, abnd 5003 ft. Ed. V. Parsons et al's Bellamy 1, 226-ac tr, F. L. Smith sur, elev 458 ft, Pecan 2855 ft, Wolf City 3070 ft, base Austin 4440 ft, abnd 5005 ft.

NORTH TEXAS

FIRST REPORTS

Archer County—Ted A. Norwood et al's Mankins 1, near c se ne S.P. Ry. sec 2, A-944, 1850-ft test.

Clay County—F. H. Gohlke et al's Bilbrey 1, blk 27, Pratts subd, lcn.

Jack County—W. H. Carter et al's Carney 1, J. D. Rogers sur A-501, dr 1910 ft.

Throckmorton County—T. A. Collier et al's Tuton 1, c se nw A. J. Kemp sur A-1369, sp. A. L. Wasson et al's Erwin 2, S. Hudler sur A-212, lcn. J. Calvin Jones et al's Wilhelm 1, TE&L sec 651, sp.

Young County—W. A. Buttram-J. B. Newby's Ferguson 1, sw part 209-ac tr, S. Tynes sur A-274, sp. Tom B. Medders et al's Daws 1, c nw TE&L sec 750, lcn deep test. Wrightsman Oil Co.'s Gilmore 1, sec 3, BBB&C sur A-27, lcn.

COMPLETIONS

Archer County—Bridwell Oil Co.'s Bridwell 2-D, ne nw TE&L sec 1853, abnd 918 ft. McKanna, Inc.'s Snider 1, sw nw TE&L sec 2601, abnd 875 ft. D. L. Wolf et al's Young 2, sw ne TE&L sec 2486, abnd 1560 ft.

Clay County—L. T. Burns et al's Southerland 1, nec w 100 ac blk 63, Belcher sur, Burns-Browning pool shallower pay, Bend 5322 ft, td 5386 ft, pb 4490 ft, perforated 3792-3805 and 3924-39 ft, 60.6 bbls 44-gr oil, 9 bbls water 3 hrs, ¾-in ch, natural.

Throckmorton County—A. L. Wasson et al's Erwin 1, Sam Holder sur, abnd 895 ft.

Wilbarger County—J. B. H. Henderson's Waggoner Est. 1, ne nw H&TC sec 2, blk 13, Coleman Junc. lime 856-75 ft, abnd 2102 ft. Magnolia's H&TC-Fee 65, sw nw H&TC sec 15, blk 13, 1st. Ordovician production Electra field. Ellenberger dolomite 2994-3008 ft, perf 2992-96 ft, flowed 27.86 bbls 4 hrs, 3/16-in ch, natural.

Young County—Ben H. Rankin et al's Logan 1, nw nw sec 2, J. W. Duty sur A-1831, new pool, used nitro shot twice sandy-lime pay 4480-4507 ft, pump 8 bbls initial. W. R. Stafford et al's Nicholson 1, nec nw TE&L sec 225, abnd 967 ft.

WEST TEXAS

FIRST REPORTS

Andrews County—T. P. Coal & Oil Co.-Seaboard Oil Co.'s Midland Farms Co. 1-C, c se se G&MMB&A sec 8, blk 41, T-1-N, rur.

Cochran County—Helmerich & Payne, Inc.'s Slaughter 1, nec Labor 67, League 136, Armstrong CSL sur, 10 mi nw prod, mim.

Concho County—E. L. Nixon et al's J. W. Riley 1, sec 1705, Blanchard sur A-1225, sp & sd.

Crockett County—Bolsa Chica Oil Co.'s Noelke 1, nec GC&SF sec 22, blk GG, 2 mi se Soma-Noelke pool, lcn.

Pecos County—Phillips Pet. Co.'s Nutt 2, c ne sw T&St.L sec 17, blk 125, lcn.

Stonewall County—Shell's Patterson 1-A, ne sw nw H&TC sec 357, blk D, lcn.

Yoakum County—Plymouth Oil Co.'s Bennett 3-A, se¼ sec 632, lcn deep test n edge Wasson fld.

Terry County—Anderson-Prichard Oil Corp.-Osage Dr. Co.'s Christman 1, c sw sw D&W Ry sec 49, mim.

COMPLETIONS

Crane County—Gulf's University 1-F, nw se se sec 22, blk 31, elev 2574 ft, Simpson 9600 ft (est), Ellenberger 10,629 ft (est), abnd 10,658 ft.

Terrell County—E. M. Thomason Prod. Co.'s Bates-Graham 3, near c e½ ne nw I&GN sec 30, blk 1, elev 2084 ft, abnd in sul w 1421-23 ft.

TEXAS PANHANDLE

FIRST REPORT

Hemphill County—I.T.I.O. Co.'s Wiggins 1, c w½ ne ne I&GN sec 5, blk 1, lcn 3200-ft test.

WEST CENTRAL TEXAS

FIRST REPORTS

Brown County—Harry E. Murray et al's Fry 1, n corner John Williams sur 33, sp.

Callahan County—C. J. Kleiner et al's Williams 2, NEc lse, T&NO sec 2, blk C, sp.

Coleman County—McKissick & Robertson's Finley 1, T&NO sec 45, blk 2, lcn. States Oil Corp.'s Sealy-Smith 1, SEc SW GH&H sec 45, blk 2, lcn.

Shackelford County—R. H. Roark et al's Diller Bros. 1, near c of s¼ TE&L sec 564, lcn.

COMPLETIONS

Coleman County—R. D. Herring's Hughes 1, nwc sw HT&B sec 28, abnd 610 ft.

Jones County—W. W. Fondren et al's Hodges 1, w 126½ ac of e 206½ ac of n½ T&P sec 32, blk 18, new pool, elev 1852 ft, td 3070 ft, pb 2960 ft, perf 2943-48 ft, pumped 36 bbls oil 144 bbls water, initial. Merry Bros. & Perini-Butler-Horne's Collins 1, swc blk 25, leag 150, DeWitt CSL sur, elev 1812 ft, abnd hwf 2962-65 ft.

Shackelford County—T. F. Morrow et al's Dyer 1, se ne ne T&P sec 73, blk 12, abnd 1220 ft. O. C. Olson et al's Swenson 1, near c e½ of E. Williams sur A-1543, abnd 1608 ft.

TEXAS GULF COAST

FIRST REPORT

Brazoria County—Shell's Clemens 5, John McNeel League, 4½ miles sw of Brazoria, on flank of old Clemens Dome, lcn 7000-ft test.

COMPLETIONS

Orange County—J. W. Frazier & E. C. Hankamer's Brown 1, s of Orange in Lizzie Higginbotham Survey, near Municipal Slip, abnd 8511 ft.

Arkansas Permits

Four drilling permits were issued last week by the Arkansas Oil & Gas Commission, as follows: Nevada County—Benedum & Trees Oil Co.'s A. R. Merida 1, C SE SW NE 11-14-20; Meadows 1, C SE SE NW 11-14-20; St. Francis County—D. T. Hargraves' M. J. Peters 1, NE NE NE 21-4n-1w; Union County — Marine Oil Co.'s Thompson B-9, NE SE SW 3-18-13.

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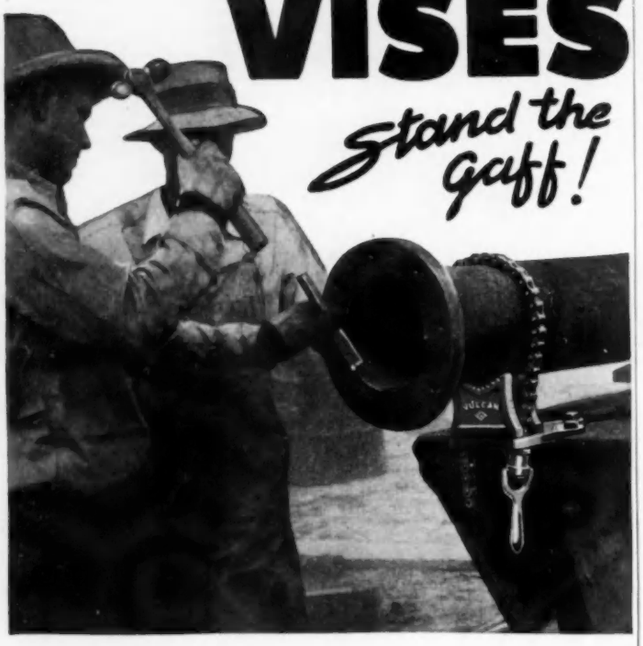

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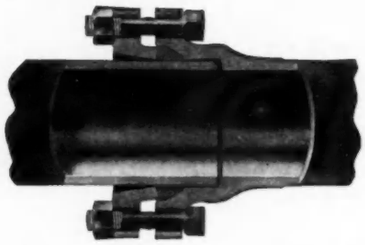

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MEN IN THE INDUSTRY'S NEWS

JOSEPH M. SITLER, for six years assistant purchasing agent for Standard Oil Company (New Jersey) has been named purchasing agent to succeed J. W. Casterton. Sitler joined Standard in December, 1921. In March, 1929, he went with Humble Oil & Refining Company, Houston, as general purchasing agent, returning to New York in June, 1935, to become Assistant purchasing agent of Standard He attended school at Hagerstown, Maryland. From 1910 to 1919, he was with the Navy Department in Maryland and Washington, becoming executive assistant to the chief of logistics and fuel division of the bureau of supplies and accounts, a position he held until his resignation in 1919. Sitler spent the next few months with the United States Shipping Board, and served on a committee to reorganize the board's district offices. On completion of this work in April, 1920, he became assistant to the general manager of U. S. and A. Steamship Lines in New York City. In December, 1921, he resigned to join Standard.

R. M. CLEVELAND, with Worthington Pump & Machinery Corporation for 24 years, has been named manager of the Boston office, succeeding W. A. Finn, who has been called to duty with the Navy.

GEORGE S. BUCHANAN and G. H. Harrington, consulting geologists and geophysicists, have moved their office from 1312 to 1524 Esperson Building, Houston.

LESLIE S. GILLETTE, Chicago Pneumatic Tool Company, has been re-elected president of the New York Sales Managers' Club.

C. E. MORRIS has been appointed by John Zink Company, Tulsa, as manager of the Dallas branch at 2405 South Harwood. He is a University of Texas graduate.

LAWRENCE S. ROCKEFELLER has been elected a director of Creole Petroleum Corporation.

E. S. BLEEKER, chief geologist of the New York production division of Gulf Oil Corporation, has returned to New York City after a six-week trip to Venezuela and Central America.

JACK SUTHERLIN, field research engineer for Dowell, Incorporated, Tulsa, has been named district engineer for the Kansas and Texas Panhandle areas, with headquarters in Wichita. He has been associated with the oil industry since leaving A. & M. College of Texas, where he majored in geology. He was first employed as roustabout with Underwood Drilling Company, joined Shasta Oil Company, and later went with Humble Oil & Refining Company. In 1931, he was in the technical department of Cabot Company, Pampa, Texas. For the past six years, Sutherlin has spent most of his time in Western Kansas oil fields for Dowell Incorporated.

MILTON C. HAGEN, former personnel manager at the Bayonne refinery of Standard Oil Company (New Jersey), has been named industrial relations supervisor for Lago Petroleum Company, Venezuela.

DR. SAMUEL T. BUSEY, of Deerfield, Michigan, and Mrs. Busey, left last week for El Dorado, Arkansas, to be "sideline observers" in the June 19-21 celebration based on "Twenty Years of Oil in Arkansas." Dr. Busey, retired physician, oil man and world traveler, is credited with opening the El Dorado field. The Busey 1 well site will be marked with a monument to be unveiled during the celebration.

LAURENCE M. EWELL, export manager for Link-Belt Company, Chicago, has been named general manager of the company's eastern division operations, with headquarters in Philadelphia. He is succeeded as export manager by Carl A. Woerwag, former assistant export manager.

Ewell entered the employ of the company in Philadelphia in 1906, and advanced successively through the drafting and estimating departments. He was transferred to the sales department; sent to the Pittsburgh office in 1911, and in 1915 returned to the Philadelphia plant sales department. Since that time, he has been constantly employed in the sales department, variously as sales engineer and branch manager of Link-Belt offices in Philadelphia, Chicago, St. Louis and New York. He was educated in private and public schools in Baltimore, at the University of Maryland, and at the United States Naval Academy, from which he was graduated in 1906.

Woerwag entered the employ of the company at Philadelphia in 1910, in the drafting room. In 1914, he became squad engineer in charge of boiler plant and gas house conveyor work. He left Link-Belt in 1917 and became an ordnance inspector in the United States Army, returning to the company in 1919 as sales engineer in the export department, with headquarters at the New York office. He attended Philadelphia public schools, entered Lehigh University, graduating in 1910 with the degree of mechanical engineer.

L. M. Ewell

C. A. Woerwag

JOHN H. HEINZERLING has joined Vinson Supply Company, Tulsa, to work on sales, service and installation of Fisher Governor Company's Control equipment in production applications. Former research engineer in the Port Arthur refinery of The Texas Company, Heinzerling has spent six years in the Dallas office of an instrument company. He will make his headquarters at Tulsa.

JACK L. AXELSON, son of Vice President D. F. Axelson of Axelson Manufacturing Company, was married in Los Angeles recently to Marilyn Bennison, daughter of Arnold D. Bennison, General Petroleum Corporation of California. Jack Axelson is working in the lathe assembly department of Axelson Manufacturing Company.

DALE NIX, California-Arabian Standard Oil Company, discussed problems involved in selection of equipment for foreign operations before a recent meeting of the Los Angeles chapter of Nomads. E. F. Sitterly, Importers' Guide, New York, spoke on this country's present relations with South America, while William T. Foran, Iraq Petroleum Company, who recently returned from the Near East, discussed the influence of Iraq and Syria on the war situation.

DOUGLAS RAGLAND, assistant Gulf Coast division engineer for Humble Oil & Refining Company, has been named Southwest Texas division engineer. T. J. Fuson replaces Ragland in the Gulf Coast division.

P. E. FITZGERALD, geologist for Dowell Incorporated, will discuss "Use of Chemicals on Oil Reservoirs Composed of Sandstones" before the noon luncheon meeting of the Engineers Club of Tulsa, June 16.

JOHN A. SILSBEE, engineering department of Sinclair Prairie Oil Company, Tulsa, has been transferred to the geological department at Baton Rouge, Louisiana.

WILLIAM GIBSON, geologist for The Texas Company, has been transferred from Oakley, Kansas, to Cereal, Alberta, Canada.

LEO W. KONZ, The Carter Oil Company, has been transferred from Waurika, Oklahoma, to Minot, North Dakota.

H. N. K. BROOKINGS, geologist for Phillips Petroleum Company, has been transferred from Oklahoma City to Bismarck, North Dakota.

E. A. BLACK and L. H. Lock, formerly associated with Mitchell Stewart Company, pipe line contractors, announce formation of Black Construction Com-

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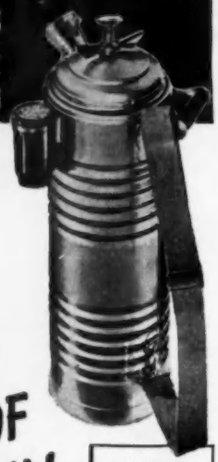

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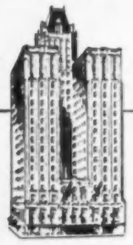

pany with office at 1905 Magnolia Building, Dallas. They have been engaged in general pipe line contracting work for the past 20 years.

M. ALBERTSON, chief petroleum research engineer for Shell Oil Company, Houston, has been named chairman of the 1941 Central Committee on Drilling and Production Practice of the American Petroleum Institute's Division of Production. Educated at Missouri School of Mines and the University of Chicago, he spent a few years in geological survey work and gold mining before joining Shell Oil Company. P. D. Torrey, The Sloan & Zook Company, Houston, is committee vice chairman, and C. A. Young of the API staff, Dallas, is secretary. Members are:

California District: A. H. Bell, Continental Oil Company, Los Angeles; J. E. Brantly, Drilling & Exploration Company, Los Angeles; D. L. Caldwell, Barnsdall Oil Company, Los Angeles; R. W. French, Continental Oil Company, Los Angeles; E. G. Gaylord, Standard Oil Company of California, San Francisco; W. E. Gilbert, Shell Oil Company, Los Angeles; H. A. Godde, Signal Oil & Gas Company, Los Angeles; Joseph Jensen, Tide Water Associated Oil Company, Los Angeles; H. N. Marsh, General Petroleum Corporation of California, Los Angeles; H. C. Pyle, Union Oil Company of California, Los Angeles; B. H. Robinson, General Petroleum Corporation of California, Los Angeles, and W. W. Robinson, The Texas Company, Long Beach.

Eastern District: J. C. Askam, The Ohio Oil Company, Findlay; W. J. Brundred, Brundred Oil Corporation, Oil City, Pennsylvania; H. C. Fowler, United States Bureau of Mines, Washington; M. L. Haider, Standard Oil Development Company, New York; H. H. Hill, Standard Oil Company of New Jersey, New York; R. B. Kelly, The Pure Oil Company, Olney, Illinois; E. N. Kemler, Purdue University, Lafayette, Indiana; J. G. Montgomery, Jr., United Natural Gas Company, Oil City; E. V. O'Rourke, Ohio State University, Columbus, Ohio; E. G. Shakely, Shell Oil Company, Centralia, Illinois; R. J. Sullivan, The Carter Oil Company, Mattoon, Illinois; B. B. Wescott, Gulf Research & Development Company, Pittsburgh; F. E. Wood, Standard Oil Company (Indiana), Chicago; R. D. Wyckoff, Gulf Research & Development Company, Pittsburgh, and J. French Robinson, The East Ohio Gas Company, Cleveland.

Mid-Continent District: G. S. Bays, Stanolind Oil & Gas Company, Tulsa; C. E. Beecher, Cities Service Oil Company, Bartlesville; E. O. Bennett, Continental Oil Company, Ponca City; W. B. Berwald, The Ohio Oil Company, Tulsa; R. W. Bond, Shell Oil Company, Tulsa; J. T. Hayward, Barnsdall Research Corporation, Tulsa; M. J. Kirwan, Indian Territory Illuminating Oil Company, Bartlesville; D. R. Knowlton, Phillips Petroleum Company, Bartlesville; C. D. Miller, Barnsdall Oil Company, Tulsa; C. V. Millikan, Amerada Petroleum

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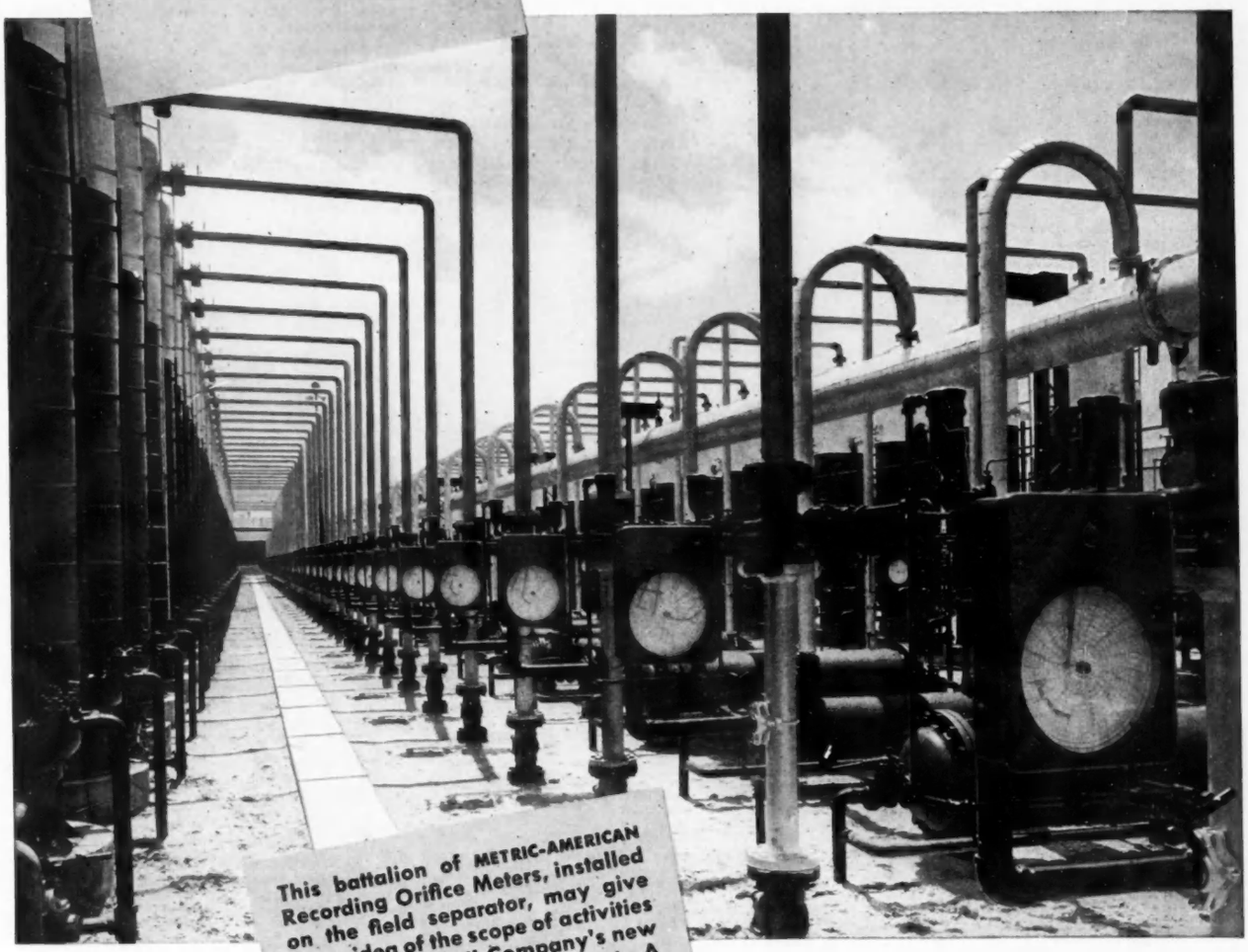

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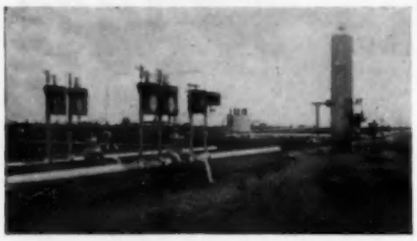

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Rocky Mountain District: R. D. Copley, The California Company, Denver; F. E. E. Germann, University of Colorado, Boulder, Colorado; W. M. Holland, The Ohio Oil Company, Casper, Wyoming, J. C. Johnston, Continental Oil Company, Denver.

Foreign: J. A. Clark, Lago Petroleum Company, Maracaibo, Venezuela, and W. C. Shutts, Standard Oil Company of Venezuela, Caripito, Venezuela.

JACK ABERNATHY, production engineer, Sunray Oil Company, has resigned to accept a similar position with Superior Oil Corporation at Tulsa.

H. M. STALCUP, vice president for Skelly Oil Company, Tulsa, fractured four ribs June 8 in a fall on the derrick floor at the company's Robbertson 4, Velma pool, Stephens County. He slipped and fell against the derrick rigging. He was brought to an Ardmore hospital.

WARREN SMITH, vice president and general manager of Pantepec Oil Company, Venezuela, has returned to the United States for a stay of several weeks in the company's New York office. He had been in Venezuela since early spring.

A. F. STADLER has been named assistant purchasing agent for Frick Reid Supply Corporation.

FLETCHER S. PRATT, 81, who started work in the Grasshopper field, Bonanza Flats, East Titusville, Pennsylvania, when 17 years old, died in Oklahoma City June 8 of heart failure. During the latter part of the nineteenth century he worked as a superintendent in Pennsylvania, Ohio, West Virginia and Kentucky fields. He was manager of The Ohio Fuel Oil Company in Charleston, West Virginia, for several years begore going to Dallas in 1918, and to Oklahoma City in 1923 as district manager. Interment was in Buffalo, New York.

CHARLES T. CASEBEER, 37, sales manager for Lane Wells Company at Oklahoma City, was fatally injured in an automobile accident in Olney, Illinois, June 6. Bruce R. Martin, Illinois representative for the company, was severely injured in the accident, and is at Olney hospital. A native of York, Nebraska, Casebeer graduated as a geologist from the University of Nebraska. From 1929 until February, 1938, he was associated with Coline Oil Company, first at Ardmore, Oklahoma, and then at Oklahoma City.

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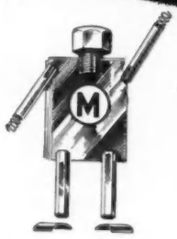

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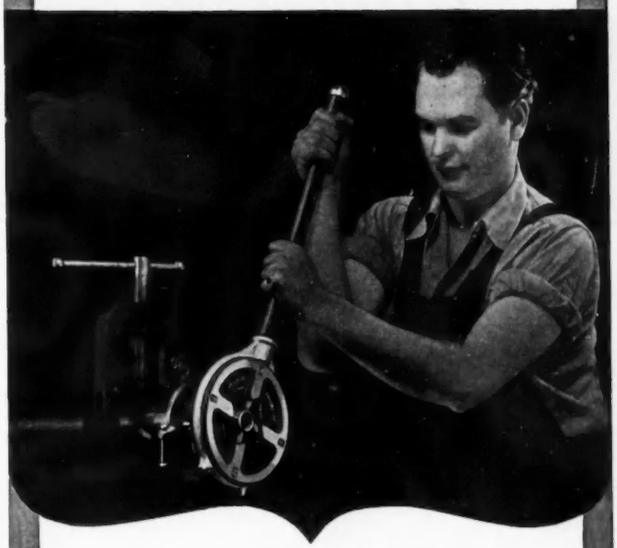
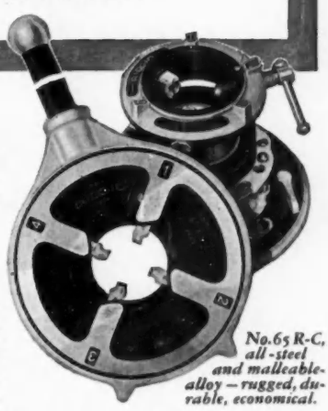


These Work-Saver RIDGID Pipe Threaders help you "Deliver ahead of schedule . . ."



No. 65 R-C, all-steel and malleable-alloy — rugged, durable, economical.

Speedy Self-contained No. 65Rs Thread 4 Sizes of Pipe with 1 set of chasers . . .

Most jobs can't wait for slow old-fashioned tools these days. Give your men these fast efficient RIDGIDs and they produce more — with less effort. . . . In 10 seconds you can set the 65R to thread 1", 1¼", 1½" or 2" pipe—no extra dies to fool with, carry around or lose. Workholders are quick, practically automatic, foolproof —set instantly to pipe size, tighten only 1 screw. Clean perfect threads from hi-speed steel chaser dies. Speed your work with these modern time and money savers —ask your Supply House for RIDGID 65Rs, today!

The Ridge Tool Company, Elyria, Ohio

RIDGID

WORK-SAVING PIPE TOOLS

Squeaks from the Bull Wheel

At the Audition

"Do you think I can ever do anything with my voice?"

"Well, it may come in handy in case of fire."

Complimentary

"Yep, I had a beard like yours once, and when I realized how it made me look, I cut it off."

"Well, I had a face like yours once, and when I realized that I couldn't cut it off, I grew this beard."

Brightest Hour

"Let me congratulate you, old man. I feel sure you will always look back on this day as the happiest in your life."

"But—er—it's tomorrow that I'm getting married."

"I know that."

Falling Off

"Bill's nowhere near as big a fool as he was."

"Has he reformed?"

"No. He's dieting."

Something to Chew on

A country minister was dining at a farmhouse one Sunday and when his plate of roast chicken was passed to him he remarked, facetiously:

"Well, here's where that chicken enters the ministry."

"Hope it does better there than it did in lay work," rejoined the bright boy of the family.

Good Deed

It is the duty of everyone to make at least one person happy during the week. Have you done so, Billy?

Yes.

What did you do?

I went to visit my aunt a couple of days, and you can bet she was happy when I went home.

Too Much Trouble

"I say, Van, you just got a new limousine last week, why buy another?"

"Aw, the bloomin' thing was headed the wrong way."

Definitely

"I understand that he is one of the kindest of fellows—a man who writes his wife every day."

"Yes, he writes a lot of gush about the agony of absence, but he never remits a cent. Do you call that kindness?"

"Decidedly. Unremitting kindness."

He'll Learn

How come you didn't turn out? Didn't you hear the bugler blow reveille?

Honest, Sarge, I'm afraid I'm going to be a flop as a soldier. I don't know one tune from another.

Talkative

Missionary—What makes your chief so talkative this morning?

Cannibal—Oh, he ate a couple of barbers.

Just One More

The night was fast waning as two drunks argued loudly in front of their home. Said the thirsty one to the one with the bottle:

"Paul, gimme jus' one more; gimme a night-cap and I'll call it quits."

"All right, Ray, you can have it. Here. Down the hatch! Now let's go to bed."

"No. I ain' gonna do it. Gotta have another shot."

"What? You just had your night-cap!"

"Yeah, but the sun just came up. Now I need an eye-opener, old pal, old pal."

Really Hot Stuff

A negro preacher was trying to impress on his congregation the terrors of hell.

"Bredderin and sistern," he asked, "is any of you evah been in Bummingham, Alabama, where de big steel works is?"

"Ah been there, pahson," said one member.

"Is you been in de mills, and has you evah seen de hot steel when it comes out of the furnaces?"

"Yes, preacher, Ah seen it."

"Well den you knows how hot dat stuff is. Ah wants to tell all you sinners dat when dat dere stuff comes out of de furnace, it's hot. It's white hot, it's sizzlin' hot. In fac' it's so hot dat no one kin come anywheres near it without gittin' shriveled up. Well, bredderin an' sistern, in hell dey uses dat dere stuff fo' ice cream!"

Chances are you'll never snag a Chinaman, but

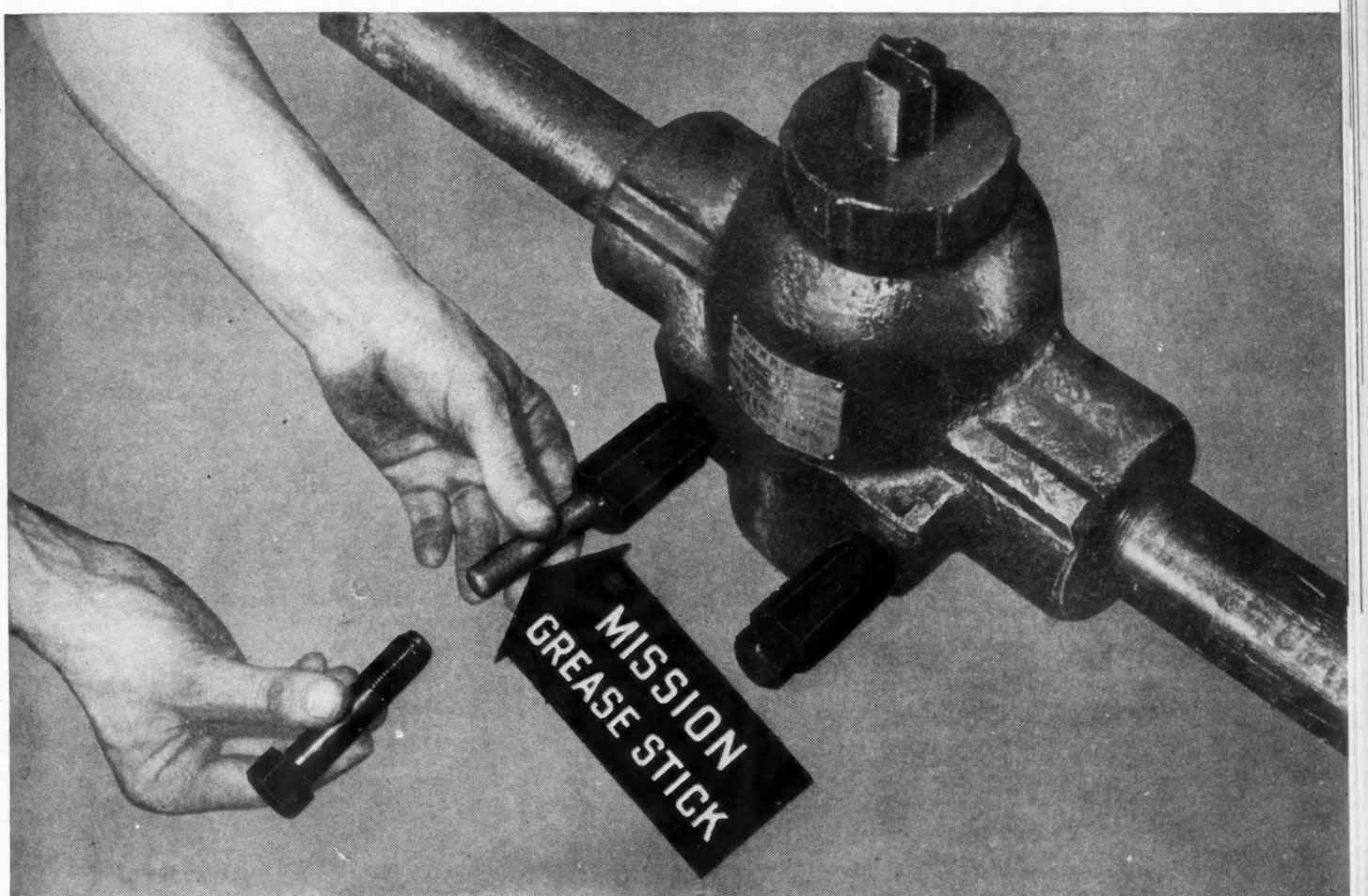
THE DEEPER YOU DRILL...

1. **UNUSUALLY EVEN FEED-OFF,** giving better control of braking . . .
2. **HIGHER BRAKING EFFICIENCY,** even at extreme high operating temperatures . . .
3. **LONGER LIFE,** under any conditions . . .
4. **LESS RIM SCORING,** making drums last longer.

• Many producers have adopted J-M 420 as their standard lining for deep well drilling. An installation on your own rig will convince you of the many advantages of this improved lining. For details on J-M 420 and other J-M Friction Materials, write Johns-Manville, 22 East 40th Street, New York, N. Y.

JM Johns-Manville 420 ROTARY LINING

It's a cinch to keep a MISSION PLUG VALVE Lubricated at all times

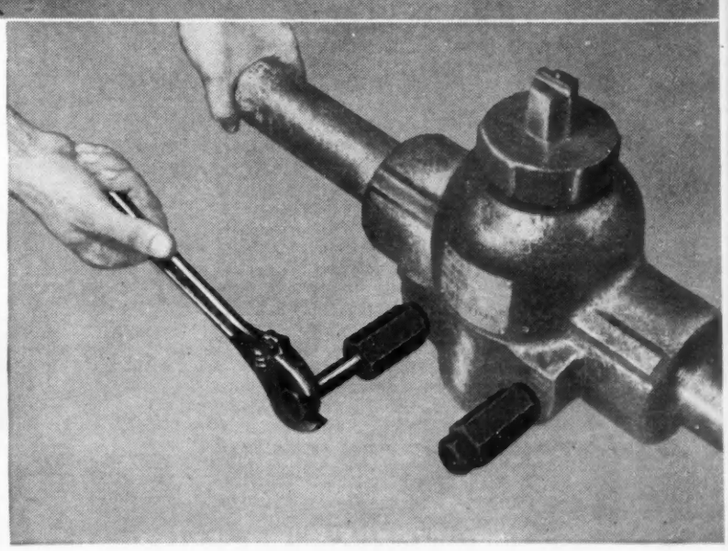


YOU fill the Mission grease reservoirs easily and quickly as shown above —

THEN the line pressure is "put to work" to maintain a steady pressure of sealing grease — and there is a uniform seal completely around each port opening of a Mission Plug Valve.

NO OTHER valve maintains a constant pressure on the lubricating grease to automatically replace grease which is washed away. That's why a Mission valve performs better and lasts longer.

MAKE your next plug valve a Mission.



MISSION MANUFACTURING CO.

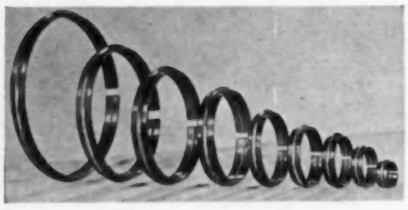
HUMBLE ROAD • HOUSTON, TEXAS
EXPORT OFFICES: 30 ROCKEFELLER PLAZA, NEW YORK

NOTES FOR THE Equipment Buyer and User

Welding Rings

TUBE-TURNS, INC.

Welding rings designed to automatically line up and space welding ends of fittings or pipe, eliminating need of clamp and fixtures, have been announced by Tube-Turns, Inc., 224 East Broadway, Louisville, Kentucky. They may be used with all types of welding fittings and pipe joints, including elbows, tees,



Tube-Turns' Welding Rings

reducers, caps, and welding neck flanges, and with straight pipe.

In use, the operator applies enough heat to melt down and puddle the ridge of the ring thoroughly to get full penetration to the bottom of the pipe wall without danger of slag or icicles being formed inside the joint.

Use of the rings is designed to reduce the amount of rod metal used.

Starters

GENERAL ELECTRIC COMPANY

Two wall-mounted low-voltage oil-immersed starters designed to resist corrosive fumes have been announced by General Electric Company, Schenectady, New York. Designated CR7008 and CR7006, the starters feature a heavy, corrosion-resisting, cast-iron head supporting the mechanism and oil tank. Stainless steel nameplates and corrosion-resisting hardware further protect them against damage. Working parts are enclosed in a 3/32-inch steel tank. Special provision is made in the head for simplified installation. Conduit entrance is provided for on the top, bottom, rear and sides of the starter, eliminating necessity for right-angle fittings.

Type CR7008 is a combination starter, combining in a single unit equipment for controlling and protecting a motor. It includes a manually operated circuit breaker for short-circuit protection and disconnecting, and a magnetic starter for push-button control of the motor. Enclosing tank cannot be lowered while the circuit breaker is on. Operating handle for the circuit breaker can be padlocked in either the on or off position to prevent operation by unauthorized persons. Manual circuit breaker, designed for operation under oil, has a rating of 10,000 amperes interrupting capacity to protect the motors, starters and personnel from injuries caused by short circuits.

Type CR7006 is a magnetic starter similar to CR7008, except that it does not include manual circuit breaker and its operating handle in the cover. It is recommended for use where other provision has been made for short-circuit protection and disconnecting.

Both starters are available in types for use in hazardous-gas locations. These types are provided with extra-deep tanks, and all connections, terminals and contact tips are at least six inches beneath the oil level. A bull's eye oil-level gage is provided for inspection of the oil level.

Valves, Fittings, Flanges

Henry Vogt Machine Company, Louisville, Kentucky, has issued Catalog F-8, giving 320 pages descriptive of its line of valves, fittings, and flanges. A preface gives general information on the company's plant, machining facilities, inspection procedure, laboratory control, testing, and stock maintained. The book contains line drawings showing construction of different items; gives specifications, and includes prices.

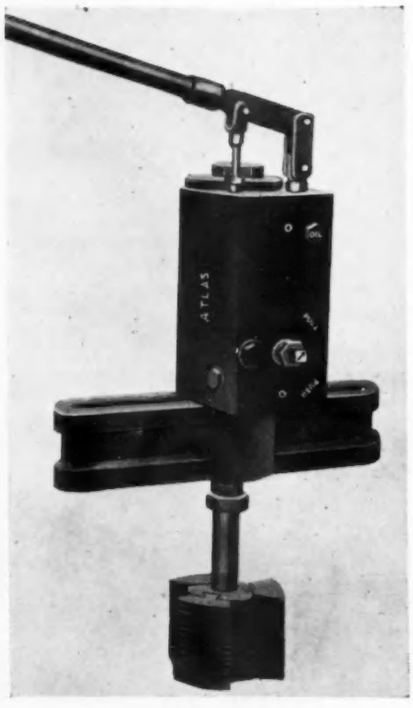
Hydraulic Pull-Press

ATLAS ENGINEERING WORKS

A reversible hydraulic pull-press designed for pulling pump liners and removing valves, gears, clutches, straightening kellys and small bars, seats, has been announced by Atlas Engineering Works, 5206 Navigation, Houston.

Offered in sizes ranging in weight from 77 to 212 pounds, it is designed to be operated by one man and to exert a force from 12 to 70 tons, pull or press. Parts are accurately machined and heat-treated.

Special equipment includes press stands, pulling yokes, slips for liners, valve-seat pulling subs and gear hooks.

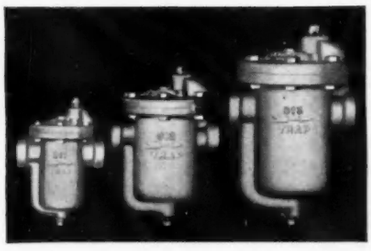


Atlas' Hydraulic Pull-Press

Steam Traps

ARMSTRONG MACHINE WORKS

Side inlet steam traps designed for 800 - 1000, 1600 - 2000 and 3000 - 4000 pounds-per-hour capacity range, designated Models 811, 812 and 813, have been announced by Armstrong Machine Works, Three Rivers, Michigan. They are built for operation on pressures up to 250 pounds.



Armstrong Machine's Steam Traps

The traps are designed so trap cap carrying mechanism can be removed without disturbing pipe connections; so trap body may be left permanently in the line to obviate any necessity of handling a vessel filled with hot condensate or having to reprime the trap, and so that horizontal, straight-through pipe connections can be employed.

The traps are equipped with stainless steel inverted bucket operating mechanism, and are available with the blast-type thermic air vent buckets and internal type check valves as optional extra equipment.

Paint

The United States Stoneware Company, 60 East 42 Street, New York, has issued a booklet on its Tygon paint, designed to resist corrosion from nitric, hydrofluoric, hydrochloric, sulphuric and chromic acids, and from salts and alkalies. It may be applied to wood, metal or concrete; in the field or at the company's plant.

Transformer

WESTINGHOUSE ELECTRIC & MANUFACTURING COMPANY

A 1200-volt current transformer designed for low voltage, outdoor metering service has been announced by Westinghouse Electric & Manufacturing Company, East Pittsburgh, Pennsylvania. It is the first unit of its kind available at a rating below 5000 volts.

Known as the WO-1 dry-type-current transformer, it has three ratings, 200/5, 400/5 and 600/5 amperes. It is designed to permit long-range accuracy, being rated for 150 percent normal current continuous operation without exceeding 55° C. rise with a 40° C. ambient. Mechanical strength against instantaneous overcurrent is rated 250 times normal current R.M.S. first peak and thermal capacity of the windings will permit 70 times normal current for one second.

End frames of the transformer completely surround the wound-type coils

TO LOWER COSTS, LENGTHEN LIFE

Tool joints that last bring drilling costs down. There is the reason for the rapidly increasing use of Chromium-Molybdenum (SAE 4140) steel for this service.

SAE 4140 has the hardness to resist abrasion and erosion. It has the essential impact and fatigue strengths to withstand the use and abuse that is part of a tool joint's life and, because of the strength of this Chromium-Molybdenum steel, joints can be made with bores large enough to permit free fluid flow.

For complete information about Chrome-Moly (SAE 4140) and other Molybdenum steels that are helping drillers achieve speed and economy, write for our technical book, "Molybdenum Steels in Oil Production." It will gladly be sent without charge to all those interested in modern materials for modern oil production requirements.

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No. 3480...100 c. c. machine. Cranks and heads interchangeable. with 15 c. c. machines.

You can maintain your required speed for the period of the test with much less effort. Curtin centrifuges, proven world-wide, are heavy duty, rigidly constructed, and extremely simple in design. Illustrated bulletin, giving full details, available upon request.

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to brace them against disruptive effects of short circuit current. The transformer is enclosed in a welded steel case with strap primary terminals, and the mounting plate is slotted for pipe frame or single cross arm mounting.

"Lessons In Arc Welding" Offered in Revised Edition

"Lessons in Arc Welding," published by The Lincoln Electric Company, Cleveland, is being offered in a revised edition containing 176 6x9-inch pages, with 170 illustrations.

Helpful to beginners learning to arc weld, to experienced welders desiring practical information, and to welding officials, such as supervisors, foremen and instructors, as well as others interested in the subject, the book comprises a ready reference on arc welding and a guide to its proper application.

The book is a series of 60 lessons which present, in concise manner, fundamental facts of welding, knowledge of which will enable the welder to utilize the process successfully and economically. It includes an introduction giving preliminary instruction to the welder, embracing suggestions for making and following a definite plan for learning the fundamental principles of arc welding, and for practicing continually, examining welds, criticizing and inviting criticism of work, for wearing proper protective apparel at all times, and assuming proper working positions.

A feature of the book is a set of questions and answers for each lesson, enabling the student to check his knowledge. This section is contained in 25 pages, with 18 pages of questions and 7 of answers. Since the questions are headed by the lesson number and subject matter, they can be of assistance in furnishing the solution to problems. Knowing the subject matter, the student can refer to the index, find the lesson in which it is covered, then turn to the questions on that particular lesson in the back of the book.

Copies may be obtained from the Book Department of Gulf Publishing Company, Box 2608, Houston, at 50 cents a copy, postpaid in the United States, and 75 cents elsewhere.

Multiport Valves

Merco Nordstrom Valve Company, 400 Lexington Avenue, Pittsburgh, has issued Bulletin V-135 describing port and stop arrangements provided by multiport valves. Shown are arrangements effected by 3-way, 2-port; 3-way, 3-port, and 4-way, 4-port valves at 90°, 180° and 270° of turn. The valves are designed to permit quick switching from line to line, with a single valve doing the work of two, three or four conventional valves. Sizes range from ½-inch to 16 inches, rated for pressures to 3000 pounds. They are supplied with "Merchrome" coating for high-temperature services and where extremely corrosive or erosive line contents are handled.

Wire Rope Care

American Chain & Cable Company, Hazard Wire Rope Division, Wilkes-Barre, Pennsylvania, has issued a 24-page pocket-size booklet on "Safe Use of Wire Rope." It gives tables of breaking strengths for all commonly used rope constructions, together with safety factors for the principal rope applications, and offers information on effects

(Patented)

STOP that waste of
Time, Toil, Temper and PROFITS
with Acme's New "Wonder-Tool"—the
MUD COLLAR

Not what it IS but what it DOES for the Rotary Driller is the "pay-off." It's really *sensational* — the savings it shows. Yes! It does more than promised.

In *Sticky Formations:* Acme's Mud Collar prevents bits "balling up" and "mud rings" forming.

In Any Formation: It assures faster cutting, longer runs, fewer "green" bits, better hole and less drill pipe torque. 6 Hi-velocity fluid streams keep cutters clean . . . wash cuttings off bottom . . . make cutting faster and freer. Also lubricate and keep fresh cuttings out of bit bearings.

Order through your Supply Store. If not in stock, write and let us tell you ALL about this Modern Marvel Tool.

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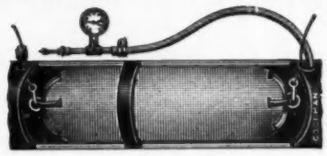

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APPROVED U. S. Bureau of Mines

Underwriters' Laboratories

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Pivots to any angle

See Page 1325 in COMPOSITE CATALOG. 1941

JUSTRITE MANUFACTURING CO.
2061 Southport Chicago, Ill.

of acceleration, constructions and grades of wire rope, and suggestions for the correction of operating factors effecting safety, such as abrasion, bending fatigue, reverse bends, kinking, spooling, crushing and corrosion. The booklet advises when to discard wire rope with broken and porcupined outer wires, how properly to lubricate rope, how to apply attachments, and how properly to inspect wire rope. It gives tables for safe sizes of sheaves and drums, and how to calculate safe groove diameters.

"Commodity Year Book—1941" Is of Timely Oil Interest

The recently published "Commodity Year Book—1941," issued by Commodity Research Bureau, Inc., 82 Beaver Street, New York, has unusual timeliness in view of the recent presidential proclamation of unlimited national emergency; and for men of the oil industry, it has particular interest as it embodies chapters on petroleum and on natural gas.

The book explains in detail what happened as regards raw materials, labor, transportation, and so forth, when a similar emergency prevailed in 1917-1918. It also shows, in its 650 large pages, illustrated with charts and containing many tables, how the 1941 pattern of events is closely following the World War period.

Listed among future developments to expect are stricter rationing of raw materials, a tightening of control of labor, capital, production facilities, transportation and fuel supplies.

Bantam Bearings Heads Exposition Paid-Up Exhibitors

Bantam Bearings Corporation, South Bend, Indiana, is the first exhibitor of the International Petroleum Exposition in Tulsa to send in a check in full for space for the 1942 show, scheduled for May 16 to 23, according to General Maanger William B. Way.

Formal contracts were mailed during the past few days to 126 companies which have requested more than 58 percent of the available space in the 30-acre plant of the oil show, Way said.

Firms which have made requests for new or increased space total 78, and will be sent contracts as soon as all 1940 exhibitors notify the exposition if they wish to renew options on old space. Way said the management has always extended options on space to oil-show exhibitors so they may retain the same location from show to show, if they so desire.

Initial plans for exhibits and features at the 1942 show were laid recently when the executive committee of the show met with Dr. Gustav Egloff, research director of the Universal Oil Products Company, Chicago, and head of the exposition scientific and technical committee, and Dr. B. B. Weatherby, Amerada Petroleum Corporation, Tulsa, who is working with Egloff on the scientific exhibits.

"The present world crisis, which places petroleum almost at the top of the list of vital necessities, will be responsible for the most elaborate and complete scientific displays ever seen at the oil show," Egloff said.

"All activities for promoting a successful May 16 to 23, 1942, show in Tulsa are now under way, and the prospects are most promising," said W. G. Skelly, show president.

Not on Probation
Twin Disc Hydraulic Torque Converters and Hydraulic Clutches are not "on probation" . . . they've been tried . . . tested and proved by more than two years of active service in the oil fields.
Anyone who buys a rig equipped with a Twin Disc Hydraulic Drive (torque converter, power take-off or clutch) is assured the same manufacturing integrity . . . the same ready, willing service that has distinguished all Twin Disc products during the years in which they have been standard equipment on so many nationally-known rigs. That's why builders of oil field equipment do not hesitate to recommend Twin Disc Hydraulic Drives.
Ask for the new Bulletin O-132 just off the press. It tells the whole story.
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